VOL. XLVII. No 9 SEPTEMBER 1962

MECCANO MAGAZINE

1/3

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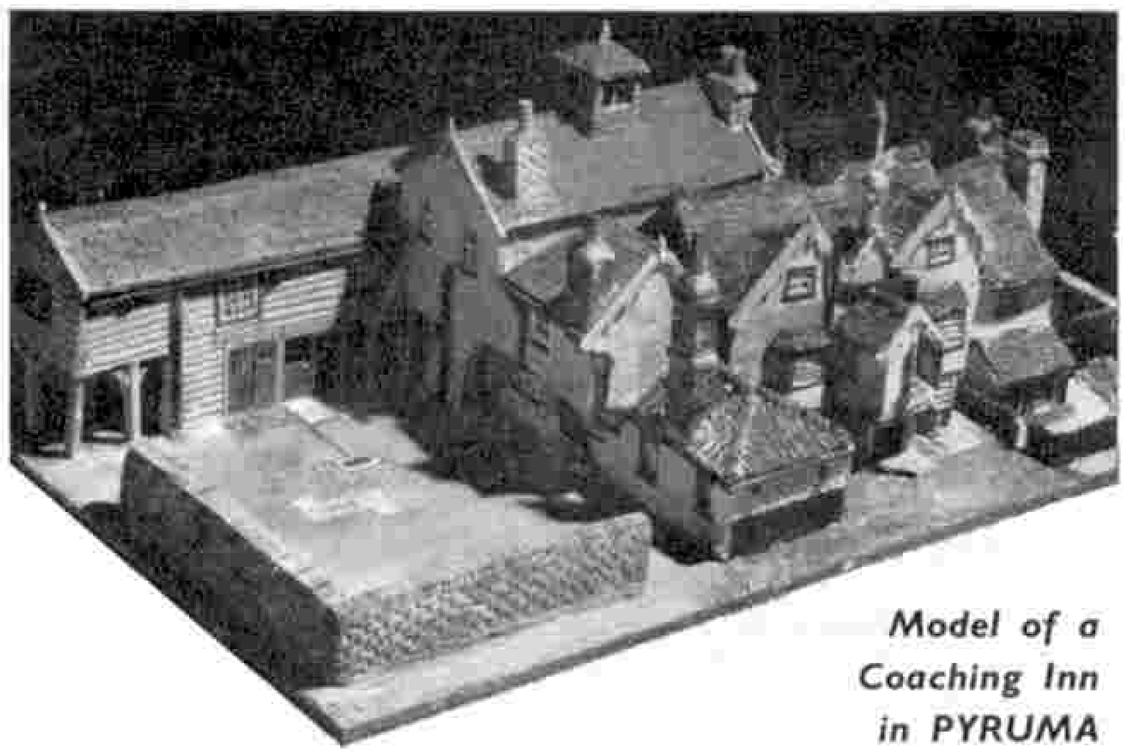

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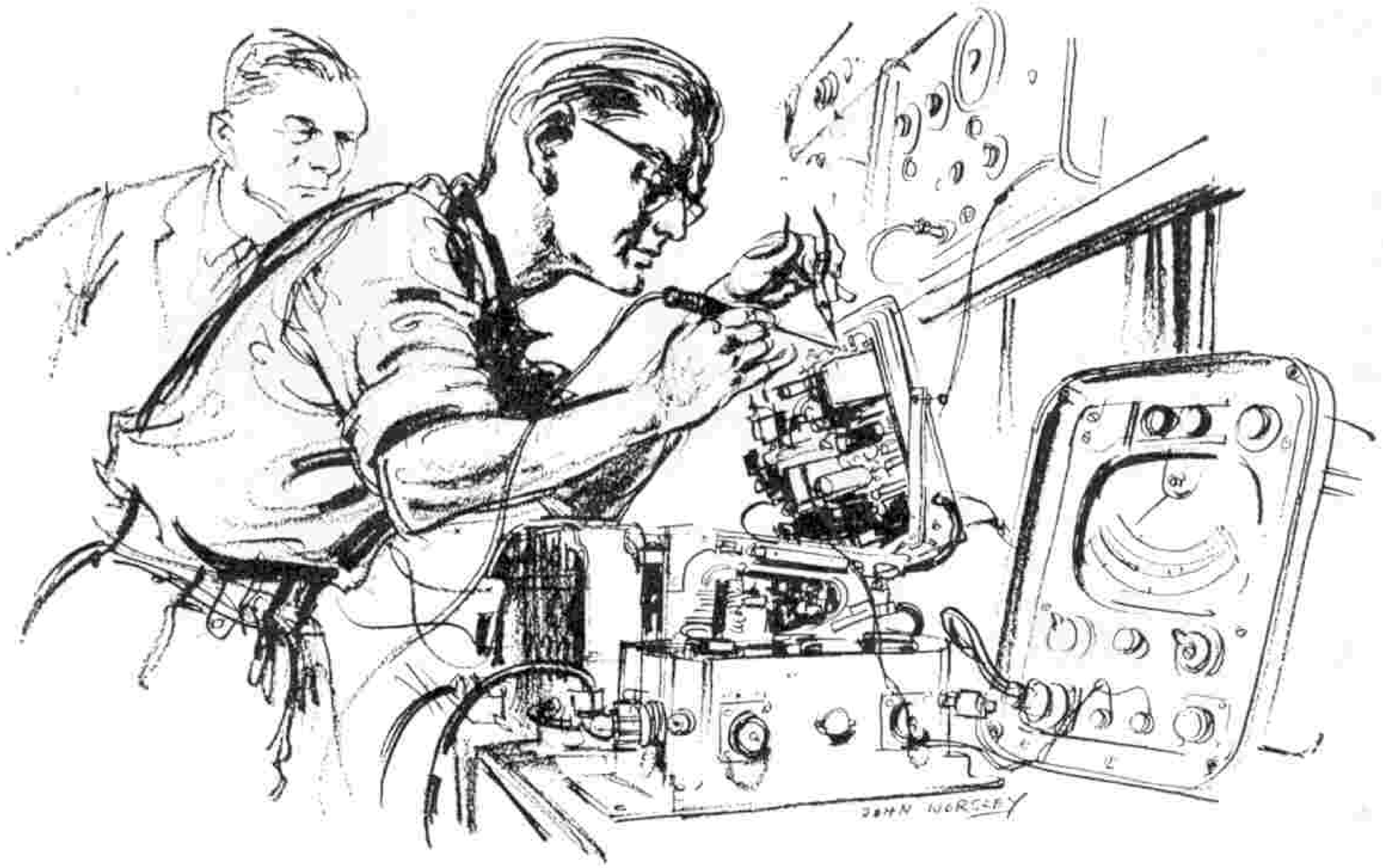

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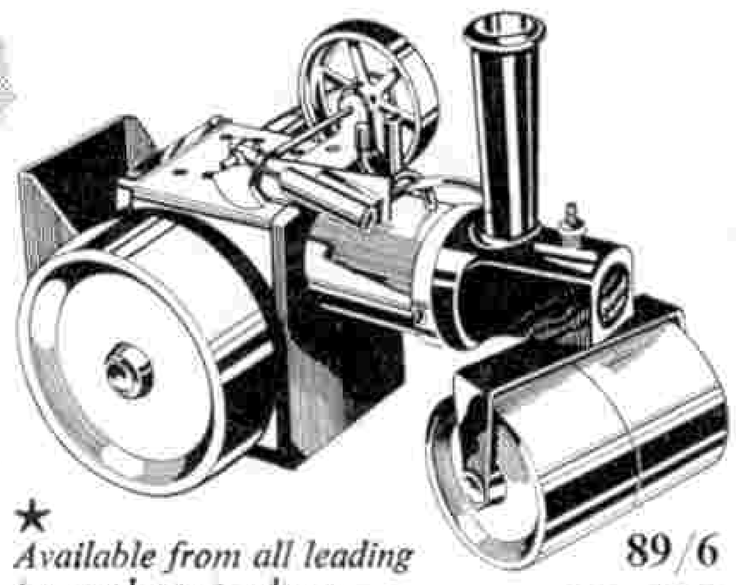

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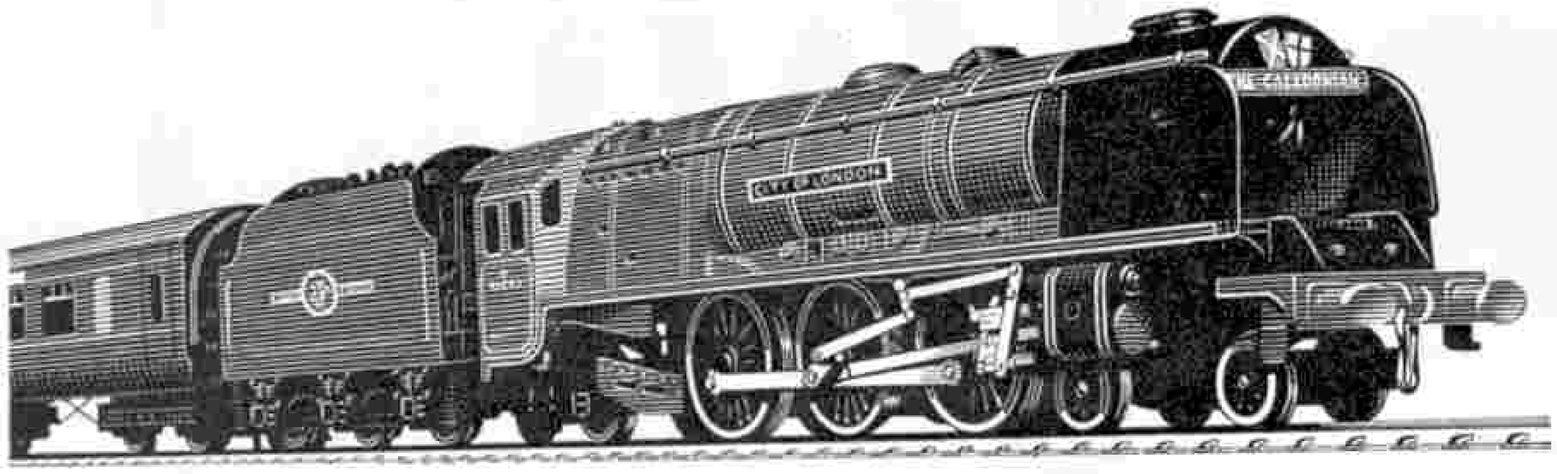

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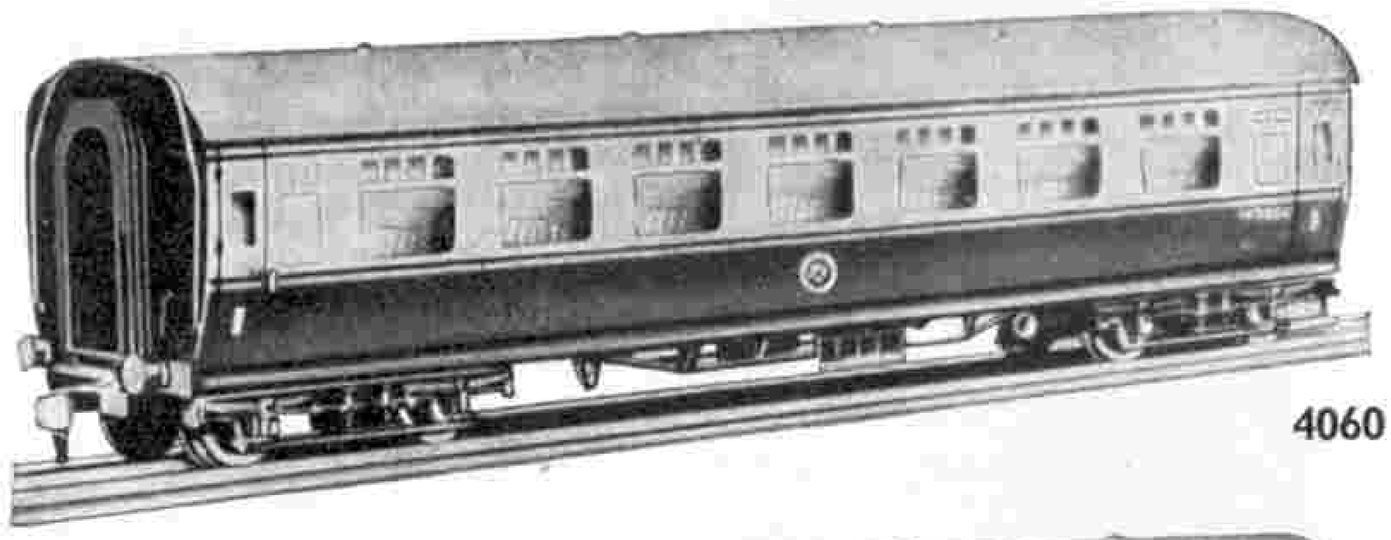

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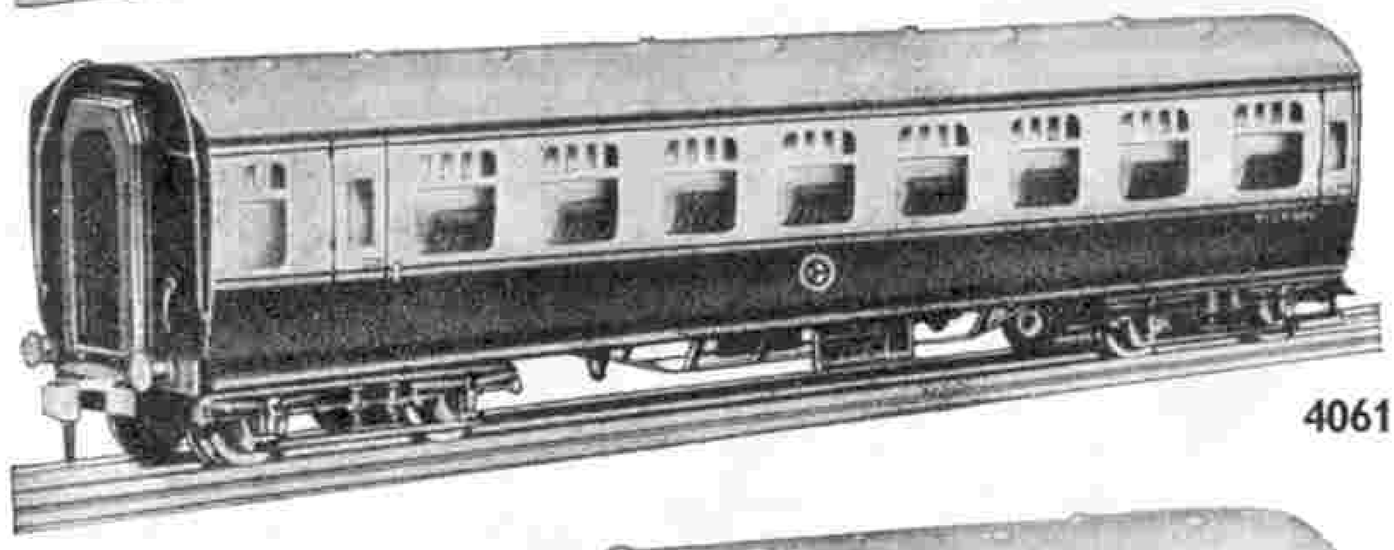

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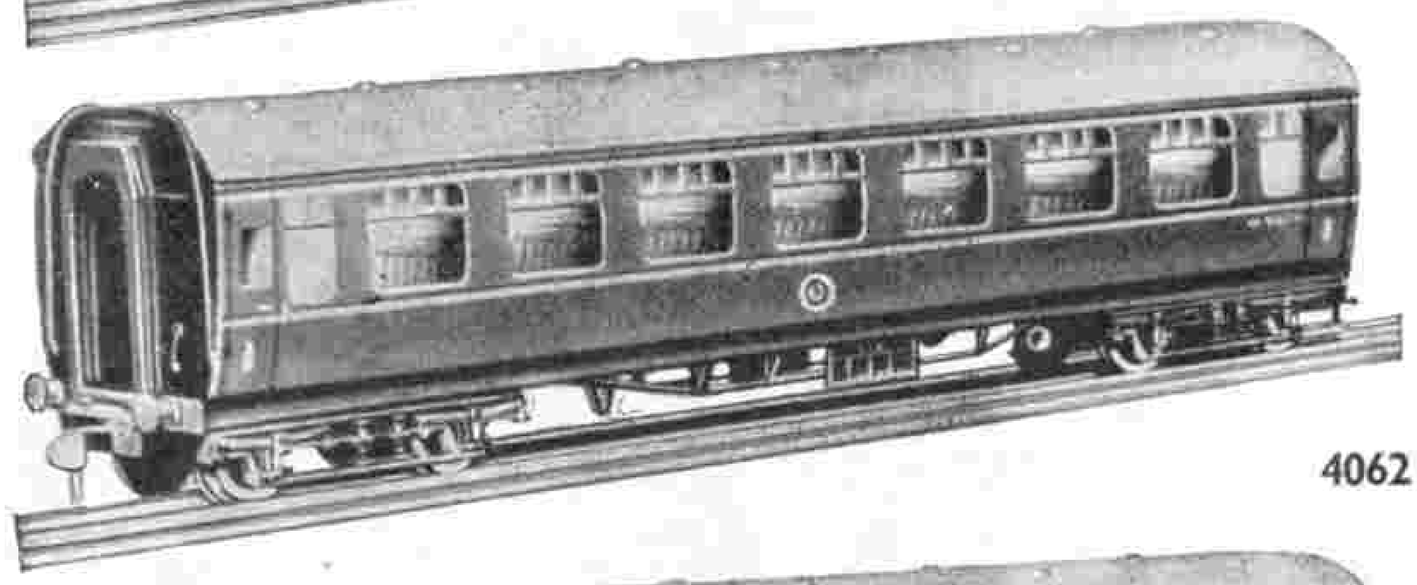

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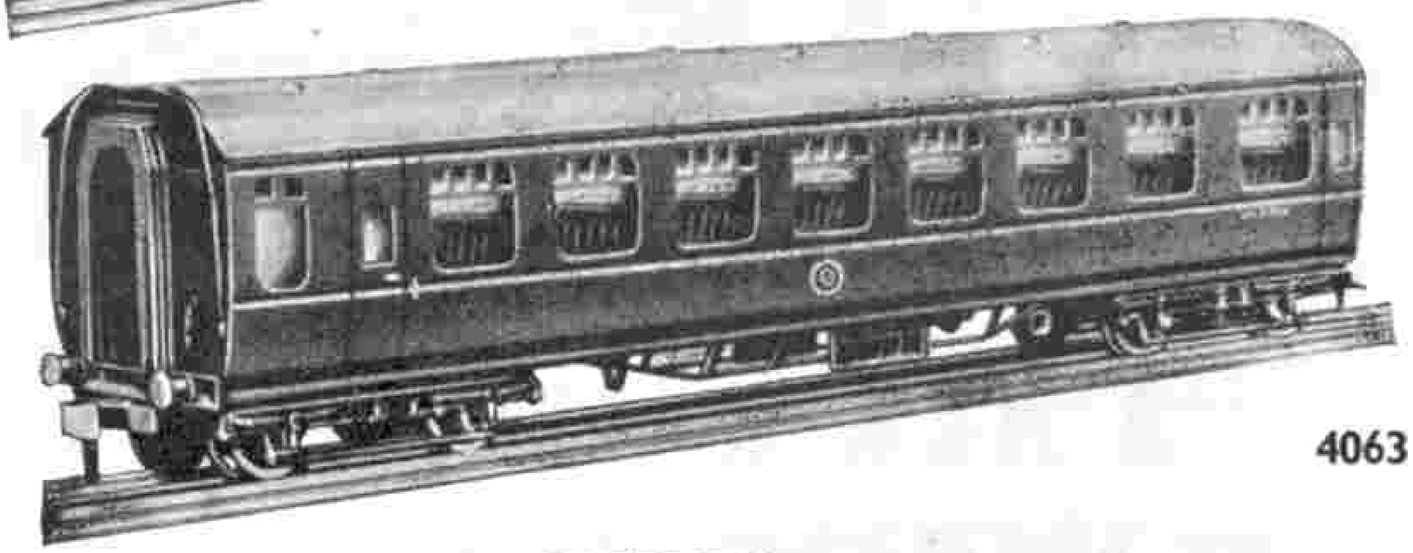

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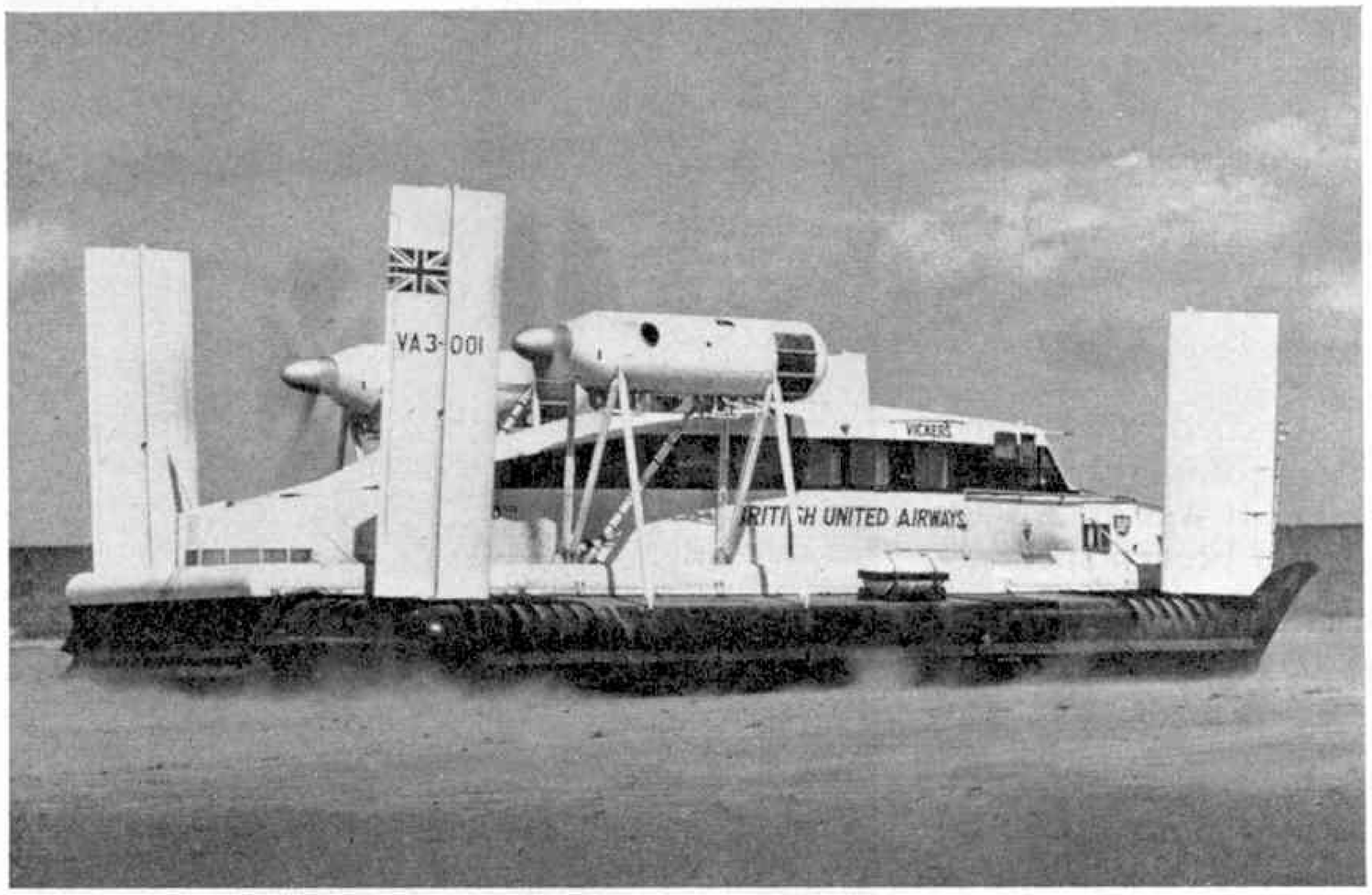


An Age Of High Adventure

IN the first Editorial message I wrote for the *Meccano Magazine*, in March 1960, I dealt with the challenge of the future. The points I raised then have been given marked emphasis in the course of the past few weeks and one realises that this is indeed an age of high adventure in which we are living. For instance, our picture this month shows a machine which has made exciting history in the past few weeks. It is the Vickers VA3 Hovercraft, which in mid-July began operating the world's first scheduled hovercraft service, and brought a new dimension and, I feel sure, wider horizons into travel. I was fortunate enough to be on the first trip of all, and you will find the journey described inside this month's *M.M.*

At about the time the VA3 was riding across the waves of Britain's North West coast into its place in transport history, in realms remote from earth itself a small satellite was turning another page in the story of mankind. Telstar burst upon an admiring world, linking together by visual aid nations living half a world apart. I wonder how many readers of the *M.M.* saw those first intriguing TV broadcasts which showed millions of the earth's dwellers how the other half live in a way never previously conceived. There may be those who feel that the Hovercraft and Telstar cannot be considered as comparable, but they are without question two outstanding events of the present year. The one can certainly play its part in transforming man's method of progress across the seas—and swamps—of the world; the other can be used to convey across the vast distances of space man's culture and scholarship, as well as his values of entertainment.

Both these inventions stem from a thirst for knowledge—the desire endlessly to learn and to improve. As I have said on other occasions, the young folk of today have before them horizons which are boundless, and their ambitions need have no limit. It is up to them to make the best and wisest use of the miracles that are being performed through the ever-growing development of modern science. **THE EDITOR**

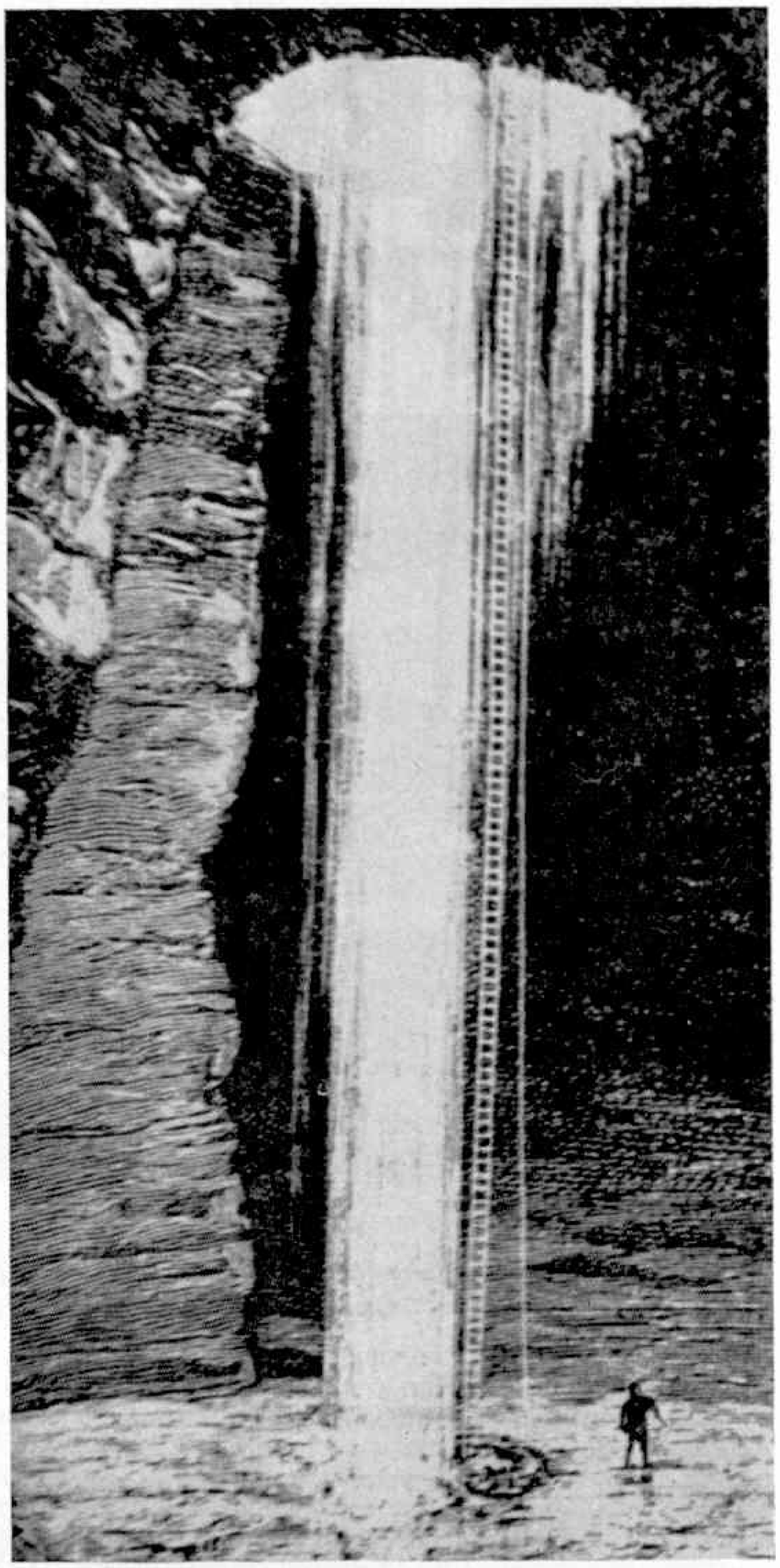
Next Month: NEW LINER "NORTHERN STAR"

OUR FRONT COVER

East Africa's port of Kilindini, the "place of deep water", forms the subject of the M.M. *cover this month. Built on Mombasa Island, Kilindini handles the exports and imports of Kenya and Uganda. Deep-water berths accommodate all classes of vessels, and indeed it is on record that on one occasion during the last war 217 ships of all kinds were berthed or anchored in Kilindini Harbour. Our cover appears by courtesy of East African Railways and Harbours.*

THE CONQUEROR OF GAPING GILL

● *In this present age the pursuit of pot-holing has devotees everywhere. But it was not always so. Close on 70 years ago a 36-year old Frenchman made a lone and courageous descent of 340 feet down a limestone shaft in the heart of the rugged Yorkshire countryside. This article relates his exciting experiences on a hazardous journey that led him through an ice-cold waterfall into an underground chamber big enough to hold a cathedral.*



A contemporary impression of Martel at the bottom of Gaping Gill.

SITTING on a bar of wood which was attached to a lifeline, and tightly grasping the rough surface of a thick rope, Edward Alfred Martel looked around him. It was an August afternoon in 1895. The bearded, 36-year-old French speleolo-

By JEREMY NORTH

gist, "father" of the sporting-science of underground exploration, was at the lip of Gaping Gill, a mysterious limestone shaft on the flanks of Ingleborough mountain, in North-West Yorkshire. Water, pouring into the shaft, hissed like escaping steam. He disturbed a pebble. It clattered downwards, rousing echoes in places where man had never been before.

What lay at the bottom? Only one man had previously had the courage to find out. John Birkbeck, son of a Quaker banker, who lived at the nearby town of Settle, tried to bottom Gaping Gill twice before 1850, but only succeeded in reaching a depth of 190 feet, supported by fraying ropes amid a clatter of disturbed stones. From a ledge Birkbeck had peered downwards into a vast, gloomy chamber before prudently climbing back to the surface again.

Back now to Martel, ready for his descent. Giving a tug at the rope, he glanced at the stakes which had been driven into the ground to belay it. They did not move. It had taken him two and a half hours to prepare the tackle and to drop into Gaping Gill 260 feet of rope ladder and 65 feet of double rope.

When, a few days earlier, he had first seen Gaping Gill, he had been amazed at the amount of water flowing into it. The weight of it would have suffocated him, and he had visions of his frail rope ladders being torn to pieces by the torrent. Fortunately, Mr. J. A. Farrer, the landowner, had offered to divert a good deal of the water down a thousand-yard trench. And Martel had indulged in a chuckle at the reaction of his friends when he bored holes in the soles of his boots, explaining that if water got in, there would be nothing to stop it flowing out again!

The speleologist felt one arm stiffening. He had tied a lantern to it. Glancing down at the wooden bar on which he sat he saw his long, neat packet containing candles, magnesium and a flask of rum covered with a wax cloth which would repel water.

Not far away his wife sat patiently beside a telephone—Martel was moderately pleased that he should have been the first to think of using a telephone for underground exploration.

About 100 people were gathered at the head of Gaping Gill. These Britons, he thought, were a remarkable lot—quiet, solemn-faced, quite unlike the crowds on the Continent. His descent of one of the potholes over there—the Mas-Raynal d'Aveyron—was memorable because a crowd of country people brought along violin and accordion and organised a dance at its very edge.

Now it was 1.22 p.m. Martel called out "Let go . . . gently", and the adventure began. For 75 feet, the little Frenchman slid easily down the rope, his feet feeling for the first rung of the ladder. Five feet away was the waterfall, and the spray dampened him. It was being whirled round and round by strong draughts. The rope ladder was reached, and Martel took a deep breath before entering the waterfall. The cold water almost took his

breath away, and he felt the weight of it on his head, thundering on the leather cap he had donned just before descending. Water dribbled down his back. He felt as though someone were running an icicle up and down his spine.

Martel's progress stopped when he was 130 feet below ground.

"Hello, hello—what is the matter?" he yelled into the telephone. Word came from his wife on the surface that a knot between two ropes had stuck in a limestone crack. It would take two minutes to release it. Martel raged at the delay, for he was still dangling in the waterfall.

The snag was cleared, and the journey resumed—down, down, down; beyond the mosses, the lichens, the ferns; beyond the friendly sunlight, for the waterfall filtered out all colour and left a dull, grey, chilling light.

Now he was 190 feet below ground, at the broad ledge which had stopped Birkbeck. Half the rope ladder was piled on it. "Hold the lifeline firmly," he shouted into the telephone. Then, grasping the end of the rope ladder, he threw it over the edge. The ladder seemed to come alive as a 145-ft. stretch oscillated into place. Martel threw himself backwards as stones clattered down.

"Let go . . . gently." Martel was on his way again, down a narrow shaft which was still faintly illuminated by grey light from above. The ladder was against the rock for 50 feet. Then, suddenly, it was swinging in space.

The speleologist gasped. He was in a vast sunken chamber, feeling like a spider dangling on a silken line under the dome of St. Paul's Cathedral. He could not estimate the size of the chamber because the walls were lost in the darkness. The ladder was swinging, its bottom rung just clear of a floor of mud and pebbles 80 feet below.

Just before he descended he had wondered if there were a lake at the bottom, but this worry was now over. Yet, the waterfall was still thundering down a few feet away.

Martel began the last stage of the descent. It was difficult because the ladder swung with each step until it began to resemble the pendulum of a clock. One moment Martel was swinging into the waterfall, and the next he was clear. The lantern he had strapped to an arm was troublesome, and he let it fall. The surface workers found that the lifeline was too short, and Martel was halted while another length was added. So he tried to be patient, although he was being held in the waterfall, any anger he felt evaporating when he looked around him at the majesty of the chamber and realised that within a few minutes he would be at the bottom.

He felt an expectation of something new and strange—of total isolation 300 feet below the earth's surface. When he completed the descent, he discovered that the lowest rung of the ladder was actually within ten inches of the cavern's floor, although it contracted a yard the moment he stepped off it.

The time was 1.45 p.m. He had conquered Gaping Gill in 23 minutes.

Modern times—enthusiasts gathered round the head of Gaping Gill during a descent by members of the Bradford Pothole Club. Picture by courtesy of W. R. Mitchell.

Of course, the problems of the ascent still remained, and a storm was grumbling around the Yorkshire fells and threatening to turn the waterfall into a gushing Niagara. But Martel was on the floor of the chamber for over an hour, while the surface workers lunched in the sunshine.

Martel on his adventurous journey—another illustration from a contemporary print.

When his eyes had grown accustomed to the gloom, he saw that the chamber could hold a cathedral, "with the spire running up the shaft," as he later described the scene.

No Reply from the Top

Now he was feeling the cold. His clothes were sodden and his limbs felt stiff. Although he had almost drained the rum from the flask, his teeth were chattering. Picking up the telephone, which he had hidden under a boulder, he tried to contact those on the surface.

"Hello! Hello!" he called. "I am going to fasten on the rope and come up. Pull gently. Hello! Hello! Do you understand? Is there no one at the telephone up there? Hello! What is the matter?"

But the telephone was full of water and did not appear to be working. The rope of the lifeline hung lifeless in the waterfall. Martel gazed wildly around, and yelled "Pull, pull!" At last he felt himself being raised. The movement was so swift he hardly had time to get his feet on the ladder.

Thirty feet up the rope stopped, and he presumed it was stuck in a crevice. Looking back he saw the flickering candles he had left on the ground, but now his thoughts were far from an appreciation of Gaping Gill. He wanted to be out, and certainly to be clear of the freezing waterfall.

The surface-workers began to haul strongly. He was lifted out of the massive chamber up to the ledge, where his shout of "Stop" was heard. The wire of the telephone became entangled and broke. Another knot jammed when he was 130 feet from the surface. But he was safely back above ground again at 3.55 p.m., 28 minutes after leaving the floor of Gaping Gill.

As he sat, blue with cold, eating a substantial lunch, (*Cont. on page 374*)

MEMORIAL TO THE GIANTS OF STEAM

A move that helped to make railway history—G.W.R. broad gauge locomotive "North Star" being manœuvred into the Railway Museum at Swindon. Illustrations by courtesy of Roy Nash.

WITH a tradition almost as long as the history of rail transport itself, it is not surprising that the town of Swindon is closely linked with events which are forming the closing chapters in the story of steam.

A. F. HUMPHRIES describes the Swindon Railway Museum

It was from Swindon that the first B.R. diesel-hydraulic locomotive to be built in railway shops emerged in 1958. Not much publicity attended this event, but it marked the beginning of the end for the steam locomotive. From that time forward, the box-like shapes of diesel hydraulic, diesel electric and diesel mechanical locomotives and shunters occupied the assembly bays and repair pits in ever-increasing numbers. And as the diesels increased, the steamers decreased.

So rapid was the encroachment that by 1960, the take-over was virtually complete. In that year, a 2–10–0 locomotive numbered 92220 was built. Considerable attention was focussed upon this engine, for she was the last of her race. All the pomp and publicity which attended the ceremony when she was fittingly named *Evening Star* could not disguise the sad, inescapable fact that the reign of steam, which had ruled supreme for a century and a quarter, was drawing to its close.

Swindon folk pondered on the arrival of the diesel, the emergence of *Evening Star* and the impending eclipse of steam. They remembered the halcyon days of the Great Western, when the town's credentials included such trains as the *Cheltenham Flyer* and the *Cornish Riviera*. Mere memories did not seem to be enough. They wanted to be more solid. That is why an 1869 Wesley Chapel which stood empty and derelict on a corner near the railway works has now been converted and put to novel use as a railway museum. Here, in halls and galleries named after famous G.W.R. engineers—Brunel, Gooch, Churchward—Swindon has preserved its solid memories.

In the main hall, towering above the more portable relics of the steam era are the principal exhibits—five engines illustrating changes in design principles over 125 years of steam locomotive development

Representing freight engines are an 0–6–0 Hawksworth tank and No. 2516 from the famous 0–6–0 Dean Goods class which did such yeoman service not only in England, but also in France during two world wars. The oldest inhabitant is the 2–2–2 *North Star* built by Robert, the son of George Stephenson, in 1837. Originally constructed to five feet six inches gauge with flangeless driving wheels six feet six inches in diameter, she was left on the firm's hands when financial difficulties prevented delivery to America. The makers converted the locomotive to the seven feet and a quarter inch gauge and fitted driving wheels seven feet in diameter for the G.W.R.

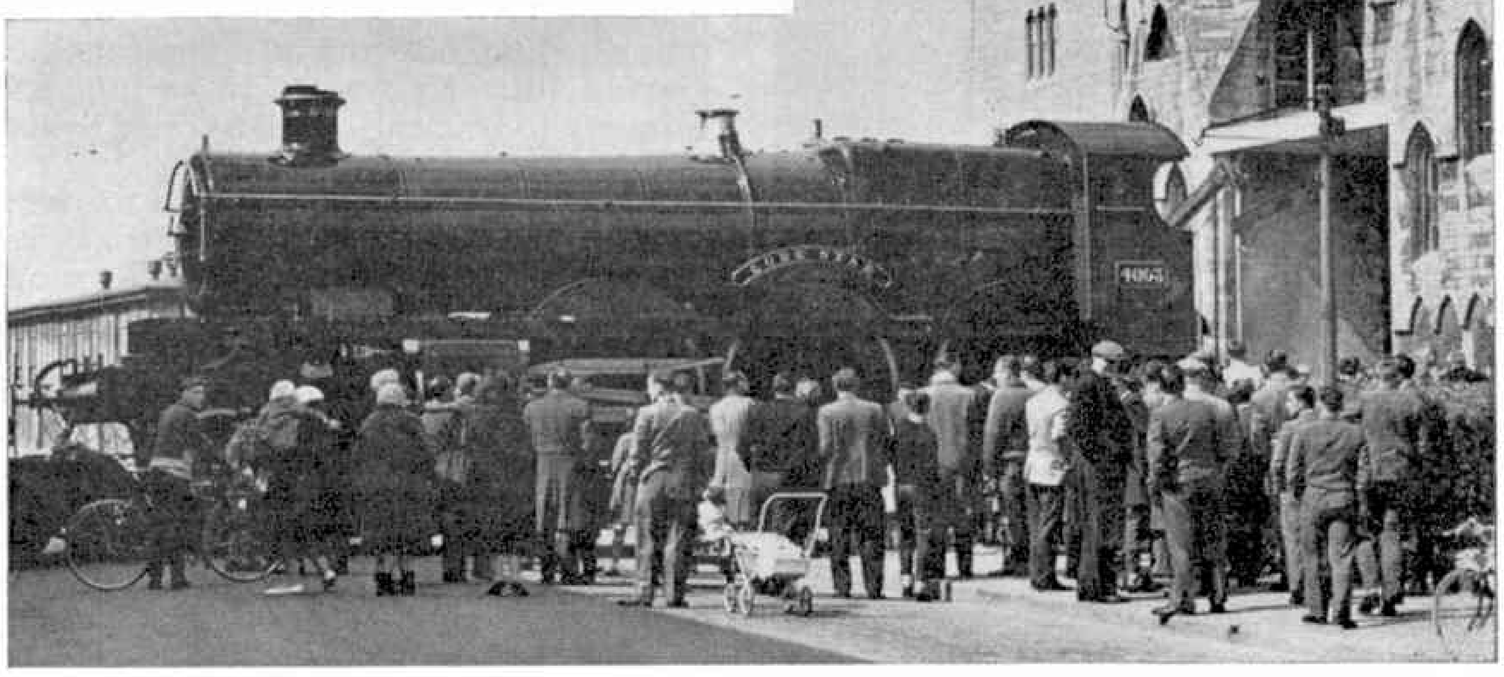
"I look forward" wrote Brunel, "to having such an engine as never before." He was not disappointed.

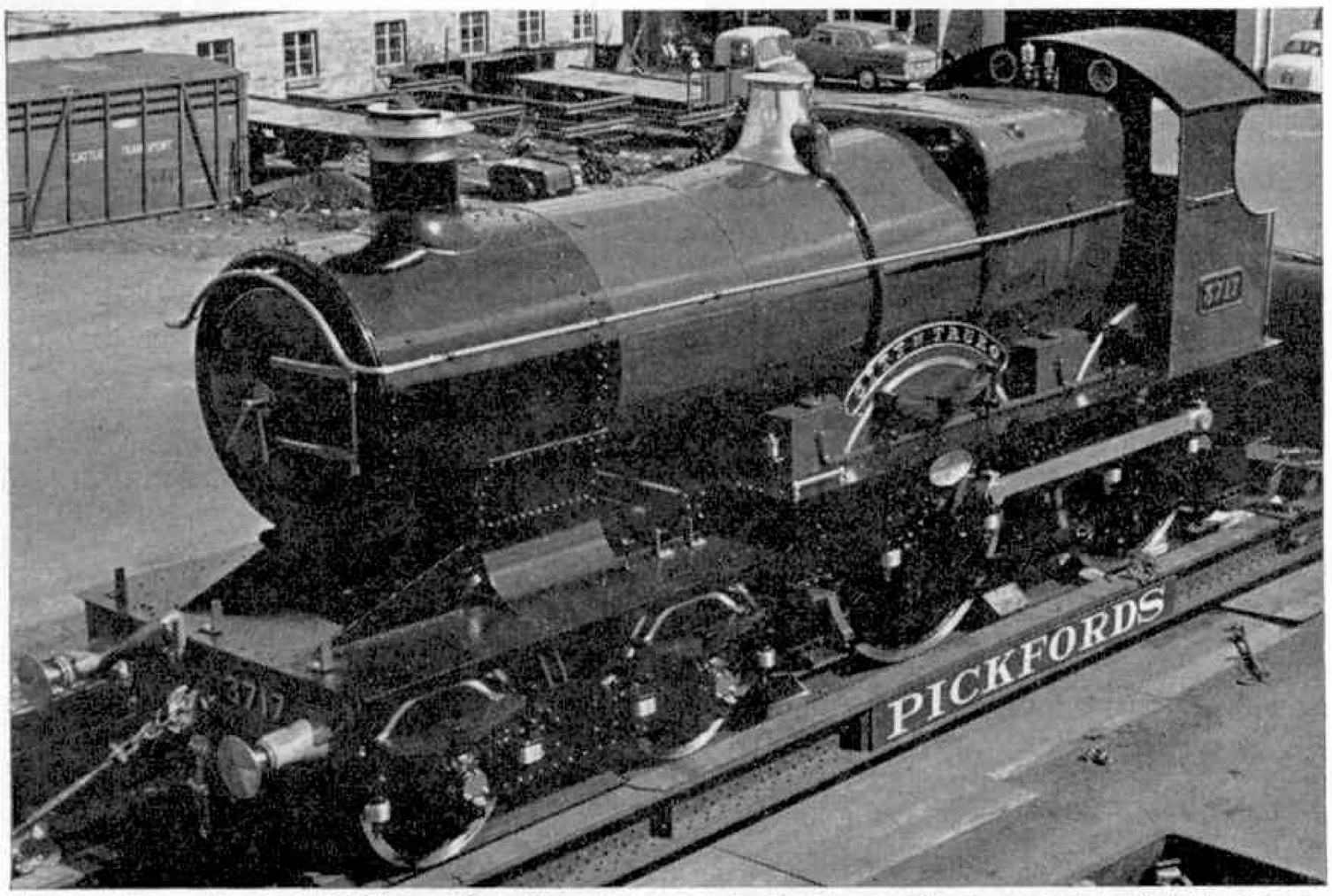
COVERED 429,000 MILES

The new engine was delivered by barge on the river at Maidenhead. Soon, the young Daniel Gooch, who was experiencing considerable trouble with his engines, was able to note in his diary ". . . . *North Star* and the six from the Vulcan Foundry were the only ones I could at all depend upon. The *North Star*, being the most powerful and in other respects the best, was my chief reliance."

The old single-wheeler continued to

There is not much room to spare as preparations are made for G.W.R. four-cylinder 4–6–0 No. 4003 "Lode Star" to enter the Museum.





The record-breaking 4–4–0 "City of Truro" on the low-loader that carried her by road from Swindon Works to the Museum.

give reliable service until retirement in 1870, when she had completed 429,000 miles.

An eventful retirement included breaking up at Swindon followed by reconstruction for the 1925 Railway Centenary. The frames and wheels were still at Swindon and enquiries brought to light an astonishing number of original parts, including one leather buffer which was combining the rôles of treasured souvenir and useful piano stool!

As well as going on show at a number of exhibitions in this country, *North Star* accompanied *King George V* to America when the Great Western Railway represented England at the great "Fair of the Iron Horse" staged in Maryland as a part of the Baltimore and Ohio Railway centenary celebrations. For many years this old favourite has been pinnacled in splendour high in the roof of the great Swindon erecting shops.

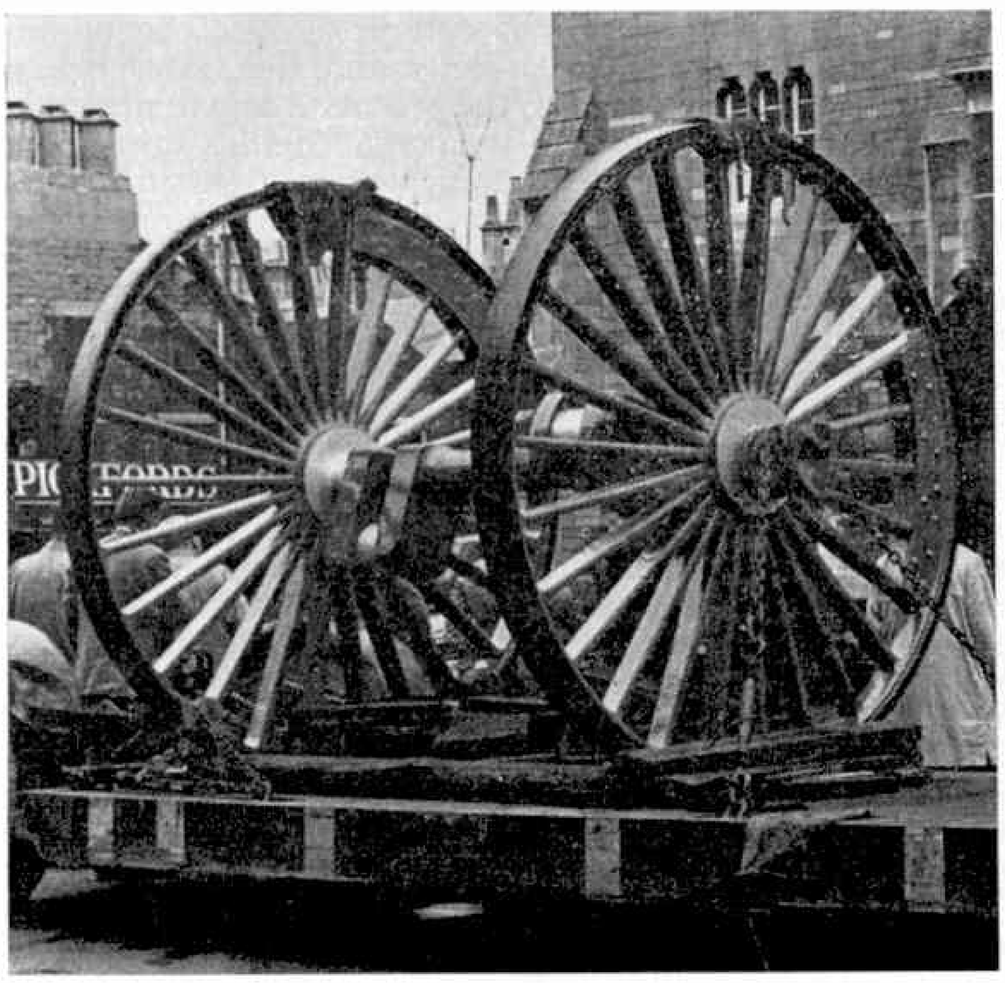
The biggest, as well as the most powerful of the locomotives on view is No. 4003 *Lode Star* built in 1907 to the design of G. J. Churchward. With driving wheels six feet eight and a half inches in diameter and boiler pressure 225 lb., *Lode Star* had covered 2,005,898 miles when withdrawn in 1951. Engines of this class were among the first successful multi-cylinder 4–6–0's in the country and they had considerable influence on subsequent design. *Lode Star* was undoubtedly a forerunner of the "Castles" and "Kings".

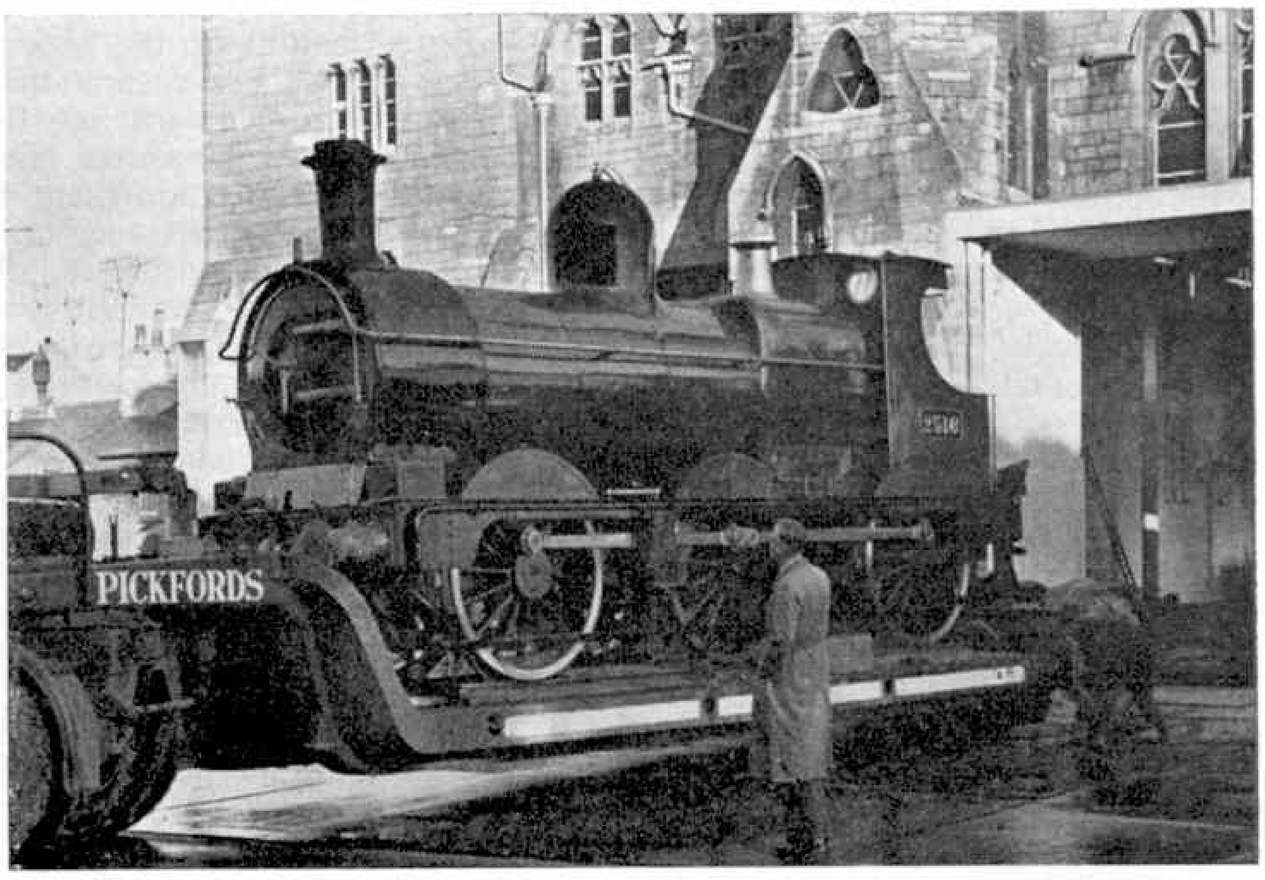
Beyond question, the museum's major attraction, the star of the show and the favourite of all five locomotives is No. 3717 *City of Truro*. This magnificent locomotive emerged just after the turn of the century when passenger traffic on the railways was increasing rapidly. Famed for their speed, "City" class engines were designed by a man whose name is still spoken with reverence by Swindonians—George Jackson Churchward. Originally No. 3440 (re-numbered 3717 in 1912) *City of Truro* went into service in 1903—the 2,000th locomotive built by Swindon shops. She is a 4–4–0 with driving wheels six feet eght and a half inches in diameter, 18½ in. × 26 in. cylinders and 195 lb. boiler pressure. On completing her last revenue-earning trip, a Television Special around the West of England in March last year, there were 1,079,915 miles on the clock, which is something like fifty times round the world.

"Speed within reasonable limits", said Brunel, "is a material ingredient in the perfection of travel", and no retrospect would be complete without mention of a great run up from Plymouth to London. In the Spring of 1904 there was fierce competition between the G.W.R. and the L. & S.W.R. for the ocean traffic of mails between New York and London, and on April 23 the L. & S.W.R. conveyed mails and passengers from Devonport to Waterloo in 4 hours 3 minutes.

On May 9 *City of Truro* was leading lady in an astonishing performance which brought passengers from the steamship *Kronprinz Wilhelm* the 246 miles from Plymouth (Millbay) to Paddington in 3 hours 47 minutes. The single-wheeler *Duke of Connaught* took over at Bristol and completed the run. At one stage while running near Wellington (Somerset) *City of Truro's* speed exceeded 102 m.p.h. In addition to thrilling the entire railway world, this run set up a record for any railway train which was to remain unbroken for almost 30 years. (*Cont. on page 365*)

Left: The eight-foot driving wheels, and crank axle, surviving from broad gauge 4–2–2 "Lord of the Isles" in transit to the Museum. Below: Veteran Dean Goods 0–6–0 awaits her turn for entry into the Museum.





SPACE NOTES

LIVING ON THE MOON

A domed lunar city of the future.

AN appreciable proportion of the current N.A.S.A. spending is devoted to the development of a manned lunar landing craft to be operational during the period 1965–70. Some of the military organisations have even more ambitious ideas—the Army Corps of Engineers has announced plans for a lunar base in the late '60's and the U.S. Air Force is also thinking of bases at about the same period.

The first Moon landings, whether they are carried out by N.A.S.A. or by military organisations, will be a national project—cost no object. But after the first few shots economics will certainly become important. This issue of Space Notes is devoted to looking at the problems involved in setting up lunar bases.

First of all, how will a lunar base differ from the usual type of community found on Earth? The greatest difference will be that of isolation. On Earth it is not possible to get more than about 12,000 miles away from any given point and one is still bound by the same gravitational force. In theory it is always possible to get home "under one's own steam". The Moon, however, is 240,000 miles away, and a highly-specialised vehicle, launching and landing complex is required to return to Earth.

The effect of looking up at the Earth in the sky is certain to be profound on the inhabitants of a lunar colony. The practical effects of isolation will be just as great. If an item is forgotten it will not be possible to obtain it very easily—in principle it would be possible to have a small supply vessel sent under remote control from Earth, but the cost would be so exceptionally high (thousands of dollars per pound delivered at the moment) that such a procedure would be reserved for dire emergencies. Thus all items required (and this includes water, food and air) must be either taken to the Moon or produced there.

The other important factor is environment. The big difference from Earth is the lack of an atmosphere. Wherever one is on Earth the easiest and cheapest thing to obtain is air. Not so on the Moon, as its gravity is so small that any atmosphere that was there disappeared into space many ages ago.

By

J. HUMPHRIES, B.Sc. (Eng.), A.M.I.Mech.E., A.F.R.Ae.S.

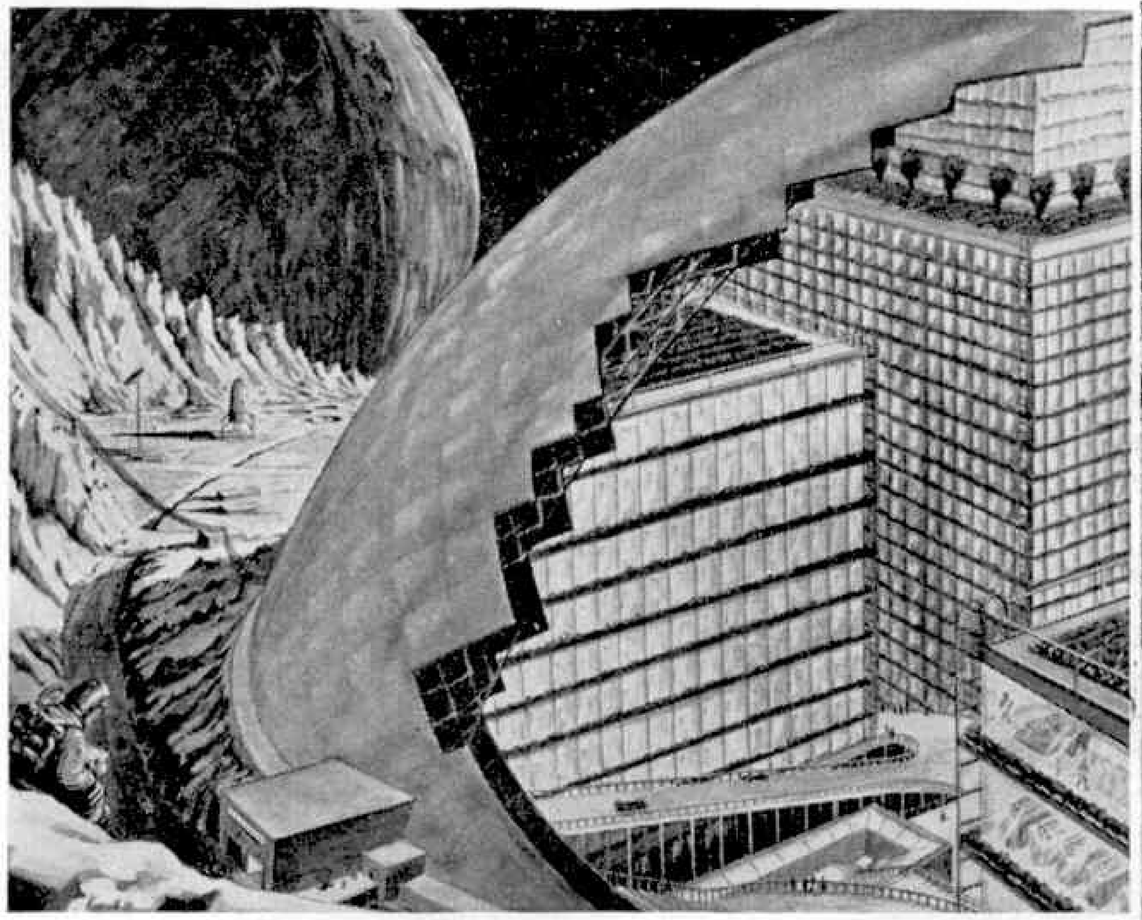
On Earth, both extreme of heat and cold are encountered—sufficient to kill on comparatively short exposures, but nothing so bad as on the Moon. The lack of an atmosphere means that there is no protection from the Sun during the long day and temperatures rise to about 99 degrees Centigrade (near boiling point). The surface cools very quickly at sunset falling to almost minus 115 degrees C. in half an hour. Fortunately the low gravity (the third major environmental difference) will enable quite massive and complex suits containing heating and cooling apparatus to be worn, but at best it will not be possible to exist for more than a few hours in a suit.

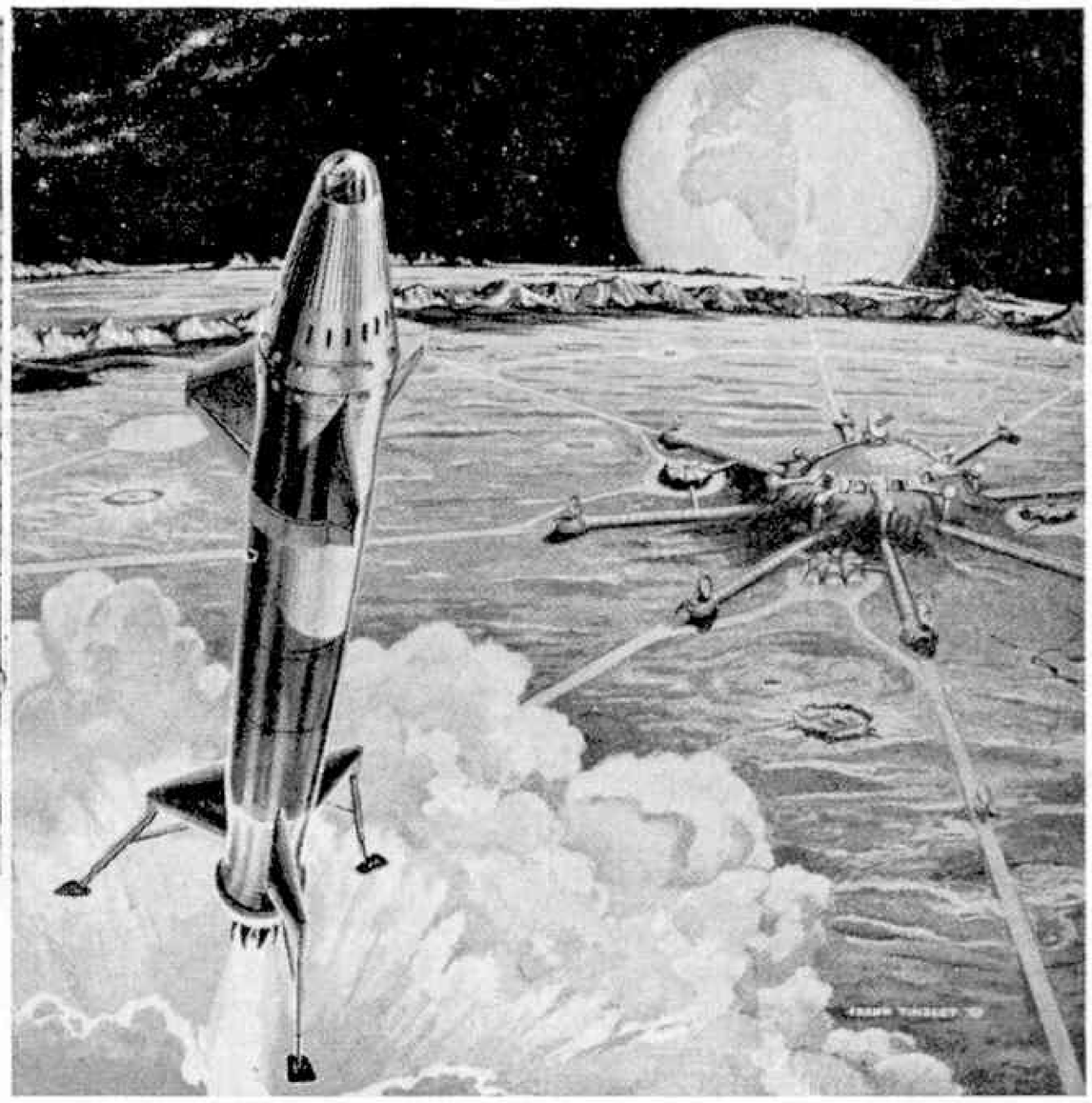
The low gravity will be a tremendous help in many ways—it is only one-sixth of that on Earth. This means that surface transport will be far easier and it will be possible to build structures which, on the Earth, would collapse under their own weight.

Before any manned landings take place, a series of instrumented vehicles will have been sent to the Moon with the express purpose of finding out about the surface and the conditions to be encountered there. However, such probes are unlikely to tell us much about available raw materials and, let me say again, all required materials will have to be transported from Earth.

The first trips are unlikely to last more than a couple of weeks and the space-ship itself will be used as base. The major items needed to sustain life are oxygen and water and these can be regenerated on a closed cycle. When air is breathed, a small percentage is converted to carbon dioxide and exhaled together with some water vapour. The carbon dioxide can be absorbed chemically and the water frozen out. This is the process that will probably be used on the initial flights, although it will not be long before a system to regenerate the oxygen will be operated. One of the most promising methods makes use of a primitive plant known as chlorella. This grows on water, carbon dioxide and a few trace elements. It gives off oxygen and can be dried and used as a food. It is hoped finally to develop a method whereby all the body's waste products can be recirculated in this way.

The most important job of the first explorers will be to investigate local materials with a view to making underground shelters, and setting up water, food and power plants. At one time, the Moon was thought to be completely without water, but there seems now to be quite a strong possibility that ice will be found fairly close to the surface where it can be quarried. The reasoning behind this viewpoint is as follows: all members of





Above: A sectional view of a domed city showing maximum use of internal space. This and the previous picture are by courtesy of the Martin Company. Right: Nuclear-propelled lunar freighter. Photograph, Frank Tinsley and American Bosch Arma.

the solar system are now thought to have been formed by an agglomeration of space debris; if this is so, then the Moon should have a chemical composition approximating to that of the Earth. In other words, there should, somewhere, be quite a lot of water.

It has been calculated that the radio-active elements in the Moon will have heated the central core to over 1,000 degrees Centigrade. This will have driven all the water into the outer layers of the Moon. There probably exist fissures, perhaps arising from past volcanic activity, and some water will have been forced up these, freezing as it nears the surface. Some astronomers now think that the small domes which are a feature of certain parts of the Moon's surface are, in fact, the ends of sub-surface glaciers covered by dust and other debris.

Solar power will be continuously available on the day side of the Moon and can be used to split up the water into oxygen and hydrogen. These gases can be stored and used for fuel or the oxygen can be used for breathing purposes. During the night, the gases could be used to generate power. Alternatively, an atomic power plant could be used at night, and the design of small stations for use in the early stages of lunar exploration is already well advanced.

TRANSPORT COSTS

Protection will be needed not only against heat and cold but also against meteors, ultra-violet radiation and possibly other solar radiations. This may best be achieved by building underground, although domed cities such as those shown in two of our illustrations may be practical. It all depends on the conditions we find.

Undoubtedly a major aim in space flight will be to cut the costs as much as possible. This will have two effects. First it will enable larger expeditions and more equipment to be sent, thus rapidly accelerating the colonisation of the Moon; secondly it will make it economic to send some of the rarer metals, if found, back to Earth. Possible improvements in conventional chemical rockets are limited and nuclear power is the most promising propulsion source for future space-ships.

The ship shown in the top right illustration on this page utilises a nuclear fission plant to supply the heat and hydrogen is used as the working fluid. It carries sufficient hydrogen for the Earth–Moon trip and is refuelled on the Moon with hydrogen produced from the electrolysis of water.

SOME NEW TITLES

Whether you are planning a camping holiday abroad on your own, or with others at some established holiday camping site, you will find the handbook *A Fortnight Camping Abroad* by A. de M. Beanland (Percival Marshall, 5/–) invaluable. The author writes from personal experience, he and his wife, and daughter—now five years old—having visited all the foreign camps to which he refers. He is thus well able to give practical advice on what you need in the way of a tent and other equipment, how to set about getting the necessary foreign permits, etc., and on camp life generally. The second part of the book deals with camping in Germany, Austria, Switzerland, Italy and France, and contains valuable information on camping sites in those countries for either the tent dweller or the caravanner, with particular reference to situation, catering facilities, and local sight-seeing. There are many excellent half-tone illustrations and line drawings.

Useful appendices at the end of the book include check list of camping "gear" for two, list of some recommended camps, and a glossary of camping words and phrases in French, German and Italian.

* * * *

The new edition of *London's Airports* (*Heathrow and Gatwick*), published by Ian Allan, price 2/6, will delight *M.M.* readers who are interested in civil aircraft and live in the London area or will be able to visit either of these London airports during their holiday travels. It describes the work of the various Air Traffic Controllers at Heathrow, and the features and functions of the main buildings there and at Gatwick. London Airport (Heathrow) is the home of the two main British air corporations, B.E.A. and B.O.A.C., and Gatwick airport is the home base of the B.E.A. Helicopter Unit, which is dealt with in a special chapter. There are plans of both airports and directions how to get there, and useful technical data on types of airliners which can be seen in service at these London airports. The booklet is lavishly illustrated, with the centre pages depicting in colour some of these types of aircraft.

* * * *

British Steam Locomotives by Ernest F. Carter (Foyle, price 4/–) presents a somewhat condensed history of the steam locomotive from its earliest beginnings to the present day in which famous men, and engines, are duly recognised. The text is supplemented by a glossary of locomotive terms and some tables of locomotive classes and statistics. The photographic illustrations, somewhat mixed in character, have reproduced well on the whole.

INTRODUCING . . .

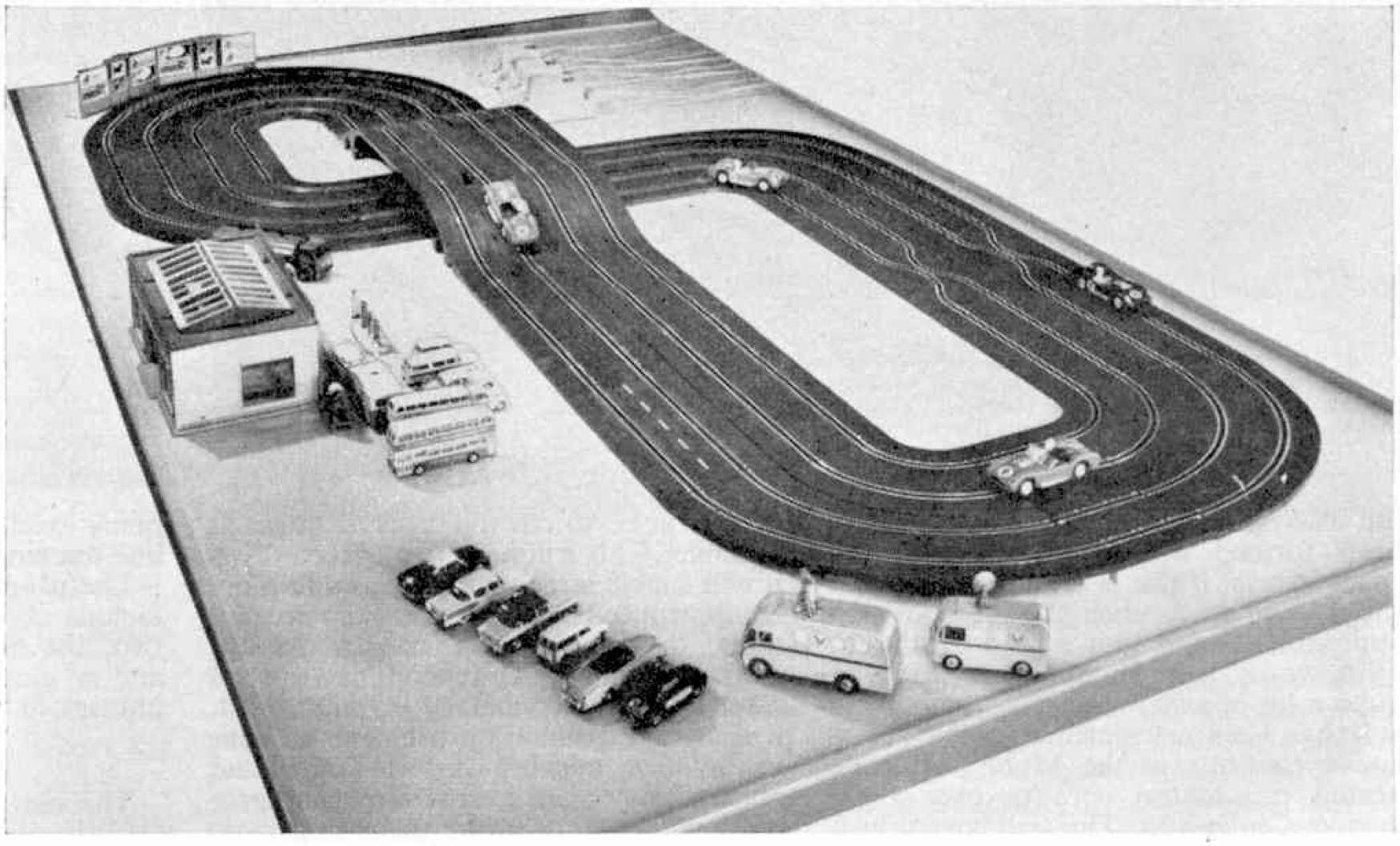
LE MANS IN MINIATURE

CIRCUIT 24

WOULD you like all the excitement of a real car race in your own home, the "roar" of the exhausts, the excitement of taking corners at speed, the immense satisfaction of seeing your car shoot ahead of its rival? All these thrills are contained in the new road racing game "Circuit 24" based on the world-famous event at Le Mans and now available from Meccano Dealers.

Road racing experts who have seen and tested this fine new indoor attraction are enthusiastic about the performance of the cars and the challenge to skill which "Circuit 24" presents. It comes to Britain after a remarkably successful debut on the Continent and will be made for British enthusiasts in three sets, details of which are advertised on the inside front cover of this month's *M.M.*

Included in the price of each set is the power control unit necessary for operating the sturdily-built, brightly-coloured racing cars and three types of car will eventually be available, all built to 1/30 scale. In the actual sets will be D.B. Panhards, but as an alternative Ferrari cars may be purchased separately. There are also plans for a Competition Ferrari Car which drivers will be able to "tune" and which will be capable of a maximum scale speed of over 300 miles an hour.



Power units have been specially designed for use with "Circuit 24", and in all three sets speed is regulated by hand throttles or accelerators which give special booster control for maximum speed.

In each case a considerable measure of control can be obtained after a little practice. In "Circuit 24", as in everything else, practice makes perfect.

The circuit itself consists of a variety of track sections which fit together with remarkable ease so that assembly is no problem. Once joined neither the vibration set up by the running of cars nor the inherent stresses of the track can dislodge the units. All three sets contain straight and curved sections and one full straight with hump. In the two bigger sets is a breathtaking chicane which is a supreme test of a driver's skill. The biggest set

(*Continued on page 380*)

Chicanes and a fly-over bridge are clearly seen in the demonstration Circuit 24 layout shown above, in which Ferrari Cars are speeding round the track. Note how bricks have been used for banking at the corner of the track covered by the Television Broadcast Vans. Below: A close-up view of the D.P. Panhard Racing Car which will shortly become available for Circuit 24 enthusiasts.

A STERN TEST

At Le Mans this year, a large "Circuit 24" track was on display near the main grandstand. Four Ferrari cars taken from standard sets ran continuously for 24 hours of the actual race and no fault or breakdown occurred in any one of them. The cars, in fact, covered approximately 56 statute miles in this exacting test, watched by vast numbers of people attending one of the world's outstanding track events.

The Electronic Eyes Of A Steelworks

L. BRUCE MAYNE describes a labour-saving device which also aids safety

MORE than twenty steelworks in Britain use closed-circuit television, one of the biggest users being the Steel Company of Wales Ltd. At the firm's Abbey Works, in South Wales, television is used as a labour-saving device, to maintain safety and for inspection of metal. All the TV installations are in the hot mill, where the white-hot ingots are rolled into slabs and eventually into steel strip.

At the north end of the mill an ingot is removed from a soaking furnace, where it has been heated to a temperature of 2,350 degrees Fahrenheit, and placed on an ingot buggy. This is a vehicle which tilts the ingot on its side and places it on a shuttle car—a truck which normally carries two ingots to the universal slabbing mill and returns to collect two more ingots.

The ingot buggy and shuttle car are operated from a control "pulpit" where the operator transfers each ingot from one vehicle to the other. He must ensure that the vehicles are in the correct position before the transfer is made and he must also be able to observe the progress of the ingot along 700 feet of track. Although the controller may be 1,000 feet away, eighteen television cameras situated along the track give him a close-up view of the operation. By selecting any three of them, his overhead monitors enable him to perform the operation safely and efficiently.

The ingot, having been transferred from the shuttle car to a roller table, is manœuvred into the universal slabbing mill where it is squeezed, rolled and turned on its side. Backwards and forwards it is rolled through this reversing mill until it becomes a slab about eight inches thick.

The slabbing mill control pulpit is on a gantry astride the roller table, and the operators can scan only one side of the mill—they cannot see what is happening to the slab as it emerges on the far side. The red-hot metal, which is subjected to tremendous stresses in the mill, sometimes splits as it comes out on the far side. Thanks, however, to a television camera installed above the roller table, on the side furthest from them, the operators can see in their screens just what the slab looks like as it goes away from their control point.

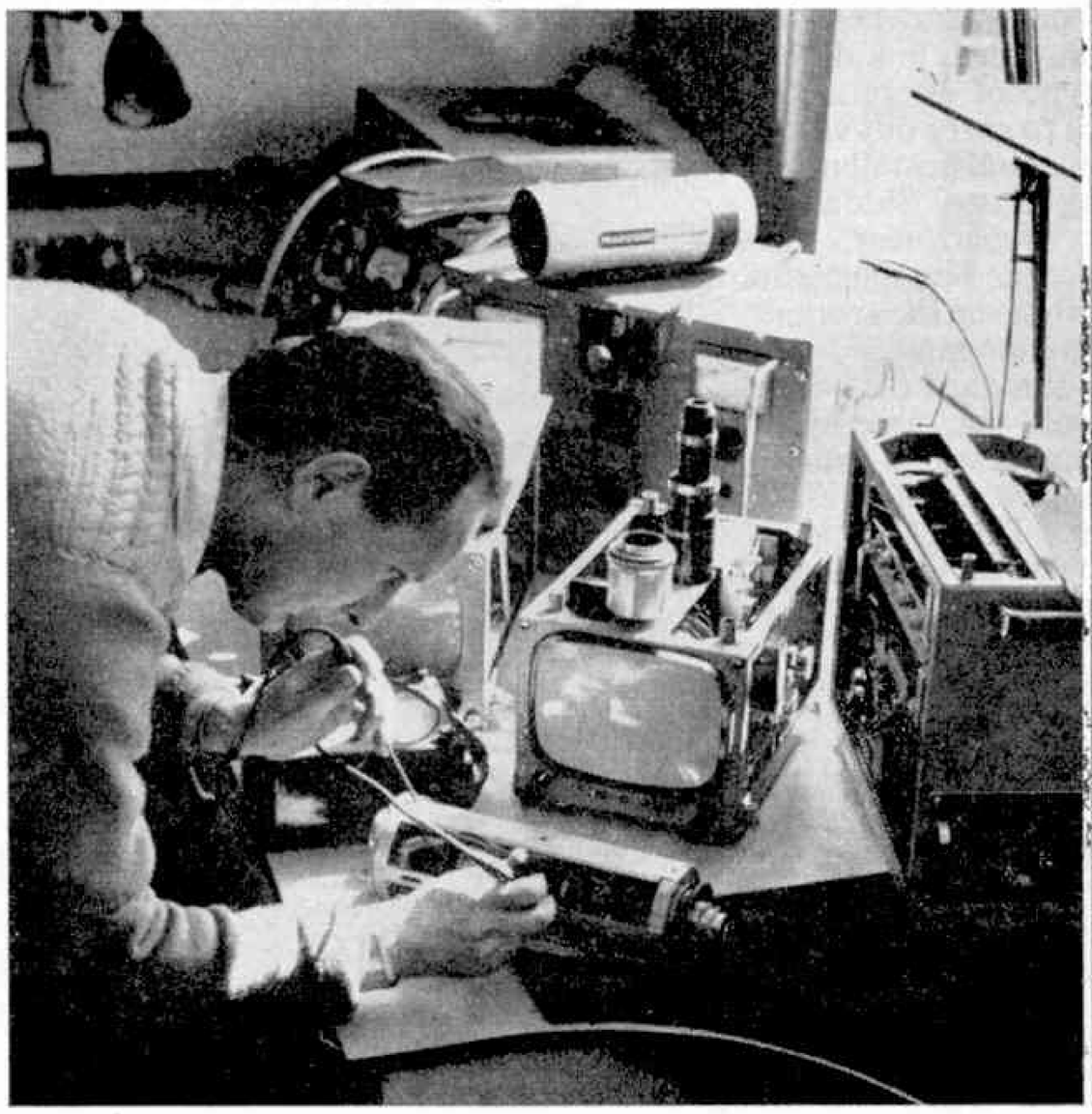
To get rid of any surface defects, or scarf, the slab is piloted through a scarfing machine which removes the defects by burning them off with oxy-acetylene flames. A television camera placed on the under-side of the machine allows the operator to inspect the bottom of the slab which he could not otherwise observe. From the production line, the slabs are normally removed to the slab yard where they are stored. Other slabs are brought by crane from storage to a roller table which runs alongside the reheating furnaces. Rams force them off the table into the furnace, where they are heated for the final stages of the rolling process. As the rams push a slab in from the "cold" side of the furnace that slab, in turn, exerts pressure on a line of slabs already in the furnace until one emerges, red-hot, on the other side to slide on to the roller table linked with the production line.

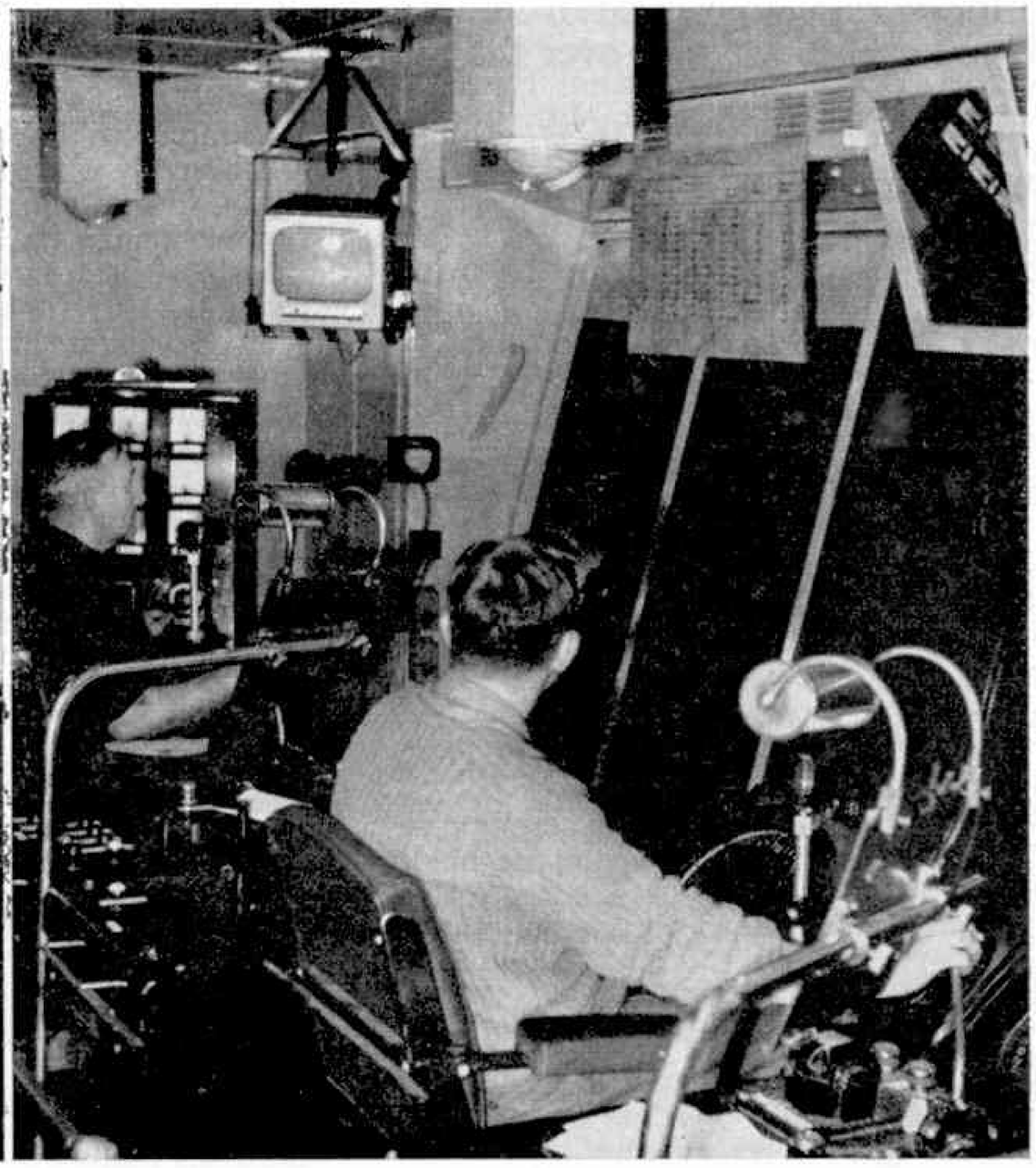
The operator who deals with slabs for the reheating furnaces must ensure that they emerge correctly and do not weld together inside the furnace. A television camera focused through a port in the furnace wall enables him to trace what is going on inside the furnace, and by means of another monitor screen he can check that the slabs drop out correctly before they are moved away on the roller table.

Each steel slab now passes through a ten-stand finishing mill which reduces it

(*Continued on page 380*)

At the Abbey Works of the Steel Company of Wales a technician in the automation department is seen maintaining a Marconi Vidicon camera (left). Also in the picture are an 8-inch monitor, a control unit and various lenses. Right: The control pulpit of the universal slabbing mill at the Abbey Works. Both photographs were taken by the author, by courtesy of the Steel Company of Wales Ltd.





LAST OF THE PIONAIRS

G—ALTT the sole survivor of B.E.A.'s fleet of DC–3 Pionairs and Leopards, once 50 strong, made its final departure from Renfrew Airport in Scotland on June 15. After many years of service among the rugged highlands and islands of Scotland, "Tango Tango" flew south for a complete nose-to-tail overhaul, before leaving for the sunnier climate of the Mediterranean.

Its working days, far from over, will be spent in future flying the 42-mile shuttle service over the Straits from Gibraltar to Tangier on the North African shore.

Older readers of the *M.M.* will be interested to learn that G–ALTT is named after C. G. Grey, the greatest-ever air journalist, who founded *The Aeroplane*, edited *Jane's All the World's Aircraft* from

By

JOHN W. R. TAYLOR

1916 to 1940, and was a frequent contributor to this magazine before and during the second World War.

NO ROOM IN THE GNAT

One of the problems which aero-engine designers have to guard against is blade vibration in the high-speed compressors and turbines of a turbojet engine. Sometimes an engine which is free from vibration troubles in one aeroplane behaves very differently when installed, in a different way, in another type of aircraft. So the engine makers have to carry out vibration tests of each individual installation.

During such tests by Bristol Siddeley's Flight Development Department, the vibration signals are recorded on magnetic tape for subsequent analysis on the ground. The equipment used is compact and can usually be carried in a standard rack on a spare seat in the aircraft. In the case of training 'planes, the pupil's seat is usually free, but the R.A.F.'s new Gnat Trainer provided an exception. The 'plane is so small that during the tests the pupil's seat was already filled with other equipment. So Bristol Siddeley technicians had the bright idea of packing the recording equipment into a modified underwing fuel tank. The result, as illustrated on this page, was entirely successful.

FREE TRAVEL

Passengers who fly on B.O.A.C.'s New York–Bermuda service will in future be able to travel free of charge by helicopter from Newark Airport, New Jersey, to Idlewild Airport, New York. The 20-minute hop by 'copter saves about two hours compared with surface transport, as well as 30/– in fares.

CHEAP LOAD-CARRIER

Surprising though it may seem, the huge Douglas C–133 Cargomaster, illustrated at the top of the following page, is cheaper to run than the average American family car, in terms of load carried.

Recording equipment for vibration tests in a Gnat trainer. The strain gauge selector and control unit is in the rear compartment; the forward compartment houses the tape recorder.

Top picture shows a full turn-out of all types of aircraft used on B.E.A.'s Scottish services, at Renfrew Airport, as the Pionair on the right prepares for take-off. The other aircraft are (rear) Viscount and Vanguard; (fore) Herald and Heron.

The Douglas Cargomaster pictured in flight.

The cars which competed in a recent U.S. Mobilgas Economy Run averaged 23.9 miles per gallon of petrol used when carrying a load of about 300 pounds. The C–133 averages over 24 miles per gallon for each 300 pounds of payload carried. Nor is this all, for the JP–4 fuel burned by the aircraft's four 7,000 h.p. Pratt & Whitney T34 turboprops costs a mere sixpence a gallon, which is about one-quarter the price of petrol in America.

Considering that the C–133 can airlift 30 tons of cargo at a time, at speeds of over 300 m.p.h., it is clearly one of the most efficient forms of transport in the world.

HAIR-LIFT

What might be described as a hair-raising take-off occurred at London Airport a few weeks ago when a B.O.A.C. Boeing 707 left for Nassau, in the Bahamas, carrying in its freight hold a full set of fifteen theatrical costumes and fifteen wigs weighing 175 pounds. Waiting anxiously for their arrival were members of the Nassau Amateur Operatic Society, whose latest production is The Gondoliers, *by Gilbert and Sullivan.*

100,000 CROSSINGS

When Pan American World Airways' Boeing 707 *Clipper America* touched down at London Airport early in the morning of Tuesday, July 3, it marked the 100,000th Atlantic crossing by this airline. No other two airlines combined can match this total of flights, during which PanAm have carried 3,590,000 passengers over what was once regarded as the world's most difficult air route.

It was on June 28, 1939, that this airline made its first transatlantic flight with fare-paying passengers. On that day, 5,000 spectators cheered and a brass band played as 22 intrepid travellers filed along a pier in Port Washington Bay, Long Island, New York, to board the *Clipper Dixie*, a Boeing 314 flying-boat capable of the then considerable cruising speed of 150 m.p.h.

The flying-boat crossed to Marseilles, via the Azores and Lisbon, in 29 hours, 20 minutes. In the same flying time, the modern jet *Clipper America* can carry 161 passengers more than three-quarters of the way around the world.

A Brantly B–2 helicopter being loaded into a B.O.A.C. DC–7F Speedfreighter for the Atlantic journey referred to in this month's notes.

AIRLINER ATTACKED!

While approaching the Kazakh capital of Alma-Ata at a height of about 7,000 feet recently, an Il–14 airliner of the Soviet national airline Aeroflot was the victim of a totally unprovoked attack. Its assailant was a giant eagle.

The pilot spotted the eagle too late to avoid a collision and the bird struck the starboard wing, punching a hole in it and remaining jammed in the hole. The Il–14 had to make an emergency landing.

BABY 'PLANES QUICK TRIP

Three tiny Brantly B–2 two-seat helicopters flew the Atlantic together recently. However, this was less of a hazardous adventure than it might sound, for they made the trip inside the cabin of one of B.O.A.C.'s DC–7F Speedfreighters with their rotor blades removed.

Quick delivery was necessary to meet the demand in Britain for B–2s, which can be used for private flying, training, crop-spraying and a variety of other jobs. Costing less than £9,000 each, they represent a type of aircraft that British manufacturers have ignored so far.

DESIGNER'S PREDICTION

In an article in the newspaper *Komsomolskaya Pravda*, the Soviet aircraft designer Vladimir Myasishchev wrote recently, "Already it can be predicted that by 1980 our passenger aircraft will cruise at speeds of from 1,600 to 2,000 m.p.h. The cruising speeds of our passenger jets are increasing so rapidly that by 1970 they

(*Continued on page 380*)

THE TRACING OF THE TAKAHE

FEW successful treasure hunters have experienced such deep and lasting satisfaction as did Dr. G. B. Orbell, of Invercargill, when, in November 1948, he re-discovered the supposedly extinct bird the Takahe (*Notornis Hochstetteri*) in a secluded glacial valley on the western shore of Lake Te Anau in the South Island of New Zealand. This important discovery of a colony of birds which, for more than 50 years, had been believed to be extinct was hailed throughout the world as a notable ornithological event. This was no mere chance discovery: it was the outcome of a planned and painstaking exploration of a wild and remote mountain region seldom visited by man.

When Dr. Orbell first explored the valley in April 1948, in the hope that remnants of the Takahe species might still exist in that region, he found footprints of a bird that could not be identified as belonging to any known species. From his curiosity concerning this mysterious bird, and his determined efforts to find it, came the thrilling discovery of the Takahe colony for, on November 20, 1948, the birds were actually seen and two were caught in a net. After being examined and photographed the birds were released.

In 1948, four further expeditions were made to this locality under government direction for the purpose of studying the birds—their feeding and nesting habits, etc., with a view to ascertaining their chance of survival under modern conditions.

By

V. MAY COTTRELL

On two occasions I have viewed with much interest colour pictures of an expedition to the Takahe Valley taken by Dr. R. A. Falla, curator of the Dominion Museum, Wellington. Not only do these photographs show the birds in their natural surroundings, but they also serve to convey some idea of the ruggedness of the country and the difficulties encountered by those who decided to visit the Takahe at home.

First, the pictures show members of an expedition—loaded with camping equipment, scientific instruments, cameras and so on—tramping doggedly over the rough terrain until they finally arrive at their destination. Then, from cleverly-concealed "hides"—and also with the aid of a telephoto lens—excellent coloured pictures of several adult Takahe are secured. The birds appear to be quite unconscious of the fact that they are being observed and are going about their ordinary, everyday

Top: Members of an expedition close to the nesting grounds of the Takahe. Right: Dr. R. A. Falla, leader of one of the expeditions, measures a Takahe egg while Mr. Louis Gurr, a zoologist, records the size and nature of the egg.

Left: Patience and Prudence were the names given to these Takahe chicks, which were two weeks old when the photograph was taken. Photograph by courtesy of P. Morrison, of the Wild Life Branch of the New Zealand Department of Internal Affairs. Right: A close-up of the Takahe in its natural habitat. Its strong legs are seen to advantage. This photograph and the two on the previous page appear by courtesy of the New Zealand Government Studios.

affairs as usual. I watched them with deep interest and I was much impressed by their handsome, dignified appearance.

The colouring of the head, neck, breast and flanks of the adult Takahe is a dazzling irridescent blue, which turns to a lovely shade of peacock blue on the shoulders. The back, rump and tail are olive green, the wings blue, outlined with green. The stout bill is scarlet at the base, shading to rose pink. The eyes are a reddish brown, the feet and legs red and the large, strong claws a darkish brown. The colouring of the immature Takahe is somewhat similar but less brilliant in tone. The nestlings are covered with black down, relieved only by a white patch on each wing.

The Takahe closely resembles the Pukeko which is very prevalent in most parts of New Zealand. These birds are a familiar sight as they stalk stolidly and unconcernedly about river beds and raupo swamps, taking no notice whatever of the cars that whizz by close to their favourite haunts. Both Takahe and Pukeko are flightless birds, but Takahes are much bigger and more heavily built.

Ornithologists Study Habits

Following the intensive investigations made when the Takahe colony was first discovered in 1948, many more trips have since been made by ornithologists, with the result that much valuable information concerning the Takahe and its habits has been obtained. Banding operations have been undertaken during a period of six years in order to check the movements of the birds, their feeding and mating habits and so on.

The nesting period extends from mid-October to the end of December, and downy nestlings may be seen during the two following months. Nests are constructed between two tall, thick snow-grass tussocks and have, therefore, both a back and front entrance. They are thickly lined with grass leaves.

From observations made by members of the various expeditions, it appears that the Takahe hen lays from one to two eggs and that incubation commences within three or four days of the completion of the nest.

In an effort to save the Takahe from that final extinction which befell so many of our beautiful native birds, the Wild Life Division of the Department of Internal Affairs organised a special expedition to Takahe Valley to bring out Takahe chicks in an attempt to rear them in captivity.

A pictorial representation of the Takahe on a New Zealand stamp.

Hens were Foster-Mothers

The party left for Te Anau about a month after the breeding season is believed to begin. After two or three days' search one set of chicks was found and a second pair was located four days later. These were removed from the nests and placed with their foster-mothers—two bantam hens which had been brought in for the purpose.

The party spent ten days in the locality to ensure initial success with their venture, but from the first night they realised they had little to worry about, for the little chicks readily accepted their bantam foster-parents. The lively, ever-hungry nestlings were fed on a special mash and insect diet and soon doubled their weight.

Unfortunately, one of the four chicks died after only a few weeks of captivity, but the other three—a female and two males—which were in the care of a farmer who is an experienced bird-fancier—made remarkable progress. Such was their headway that, at seven months, the biggest weighed 9 lb., being two or three pounds heavier than any of the Takahe found in their secluded valley home.

The marked success of this experiment proves that Takahe thrive in captivity and it is hoped that next breeding season these young birds may produce the first Takahe chicks to be hatched away from their native haunts. Great public interest has centred round these young birds, named respectively Paul, Peter and Prudence, and much space in newspapers and magazines has been devoted to information regarding their progress, habits and so on.

When, at about the age of twelve months, they were on public exhibition at the farm, thousands of people flocked to see them roaming about unconcernedly in their large, open pens. In its natural habitat the Takahe feeds on the tough snow-grass, but Paul, Peter and Prudence will eat practically anything—their favourite tit-bits being bananas and cream sponge cake!

Sealers' Capture

The very first specimen of the Takahe species to be captured was at Dusky Bay, by sealers, in 1849. It was caught alive by their dogs and kept aboard their schooner for several days before it was killed, cooked and eaten. According to reports, it made a tasty meal for hungry sealers but—luckily for them—no such unhappy fate befell any of (*Cont. on page 380*)

HISTORY RIDES ON A CUSHION OF AIR

First Passenger Trip By Hovercoach

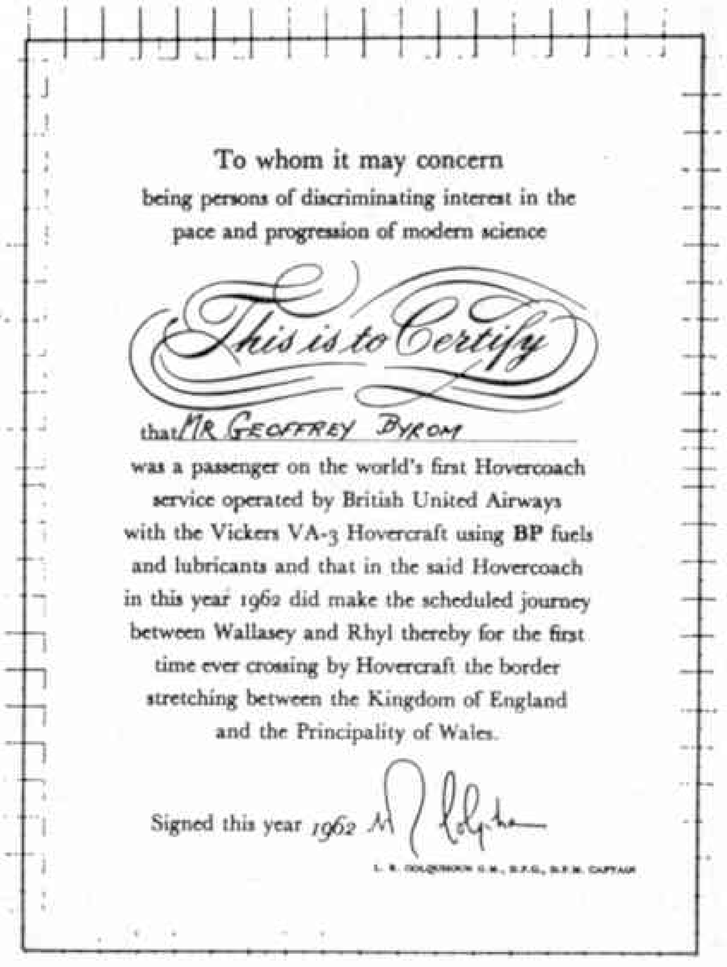
IN a flurry of sand and a cloud of spray the Vickers VA–3 Hovercoach whirled into history on July 17, when it operated the world's first scheduled passenger-carrying service between Rhyl, on the North Wales Coast, and Wallasey, at the tip of the Wirral Peninsula.

Its progress on an eight-inch cushion of air over the silvery seas of Liverpool Bay and the swirling shallows of the River Dee was witnessed by thousands of people gathered in huge clusters at either terminal, and by cameramen in a helicopter which swung endlessly backwards and forwards across its path to record this outstanding

By
THE EDITOR

event for posterity. Television and newsreel men, photographers and journalists from newspapers and periodicals with readers in every part of the world were at the birth of this enterprise, which marks another step forward—and almost certainly a very big one—in the history of transport.

Countless centuries ago man invented the wheel, and a new era in travel was



To whom it may concern
being persons of discriminating interest in the pace and progression of modern science

This is to Certify

that MR GEOFFREY BYROM
was a passenger on the world's first Hovercoach service operated by British United Airways with the Vickers VA-3 Hovercraft using **BP** fuels and lubricants and that in the said Hovercoach in this year 1962 did make the scheduled journey between Wallasey and Rhyl thereby for the first time ever crossing by Hovercraft the border stretching between the Kingdom of England and the Principality of Wales.

Signed this year 1962 M Colquhoun

L. R. COLQUHOUN O.B.E., D.F.C., D.F.M., CAPTAIN

Holidaymakers crowd the beach at Rhyl as the Hovercoach comes up on to the shore after its first scheduled passenger trip to Wallasey and back. (Photograph Vickers-Armstrongs). Right: A reproduction of the certificate presented to those who made the first journeys in the Hovercoach. It is signed by the driver of the craft.

Stepping ashore from the Hovercoach at Wallasey the driver, Captain Leslie Colquhoun, posed specially for this picture for "M.M." readers.

born; now, scientists working on hovercraft development have done away with the wheel and again we are on the threshold of a new outlook, a new shape, in this important business of moving people and goods from place to place.

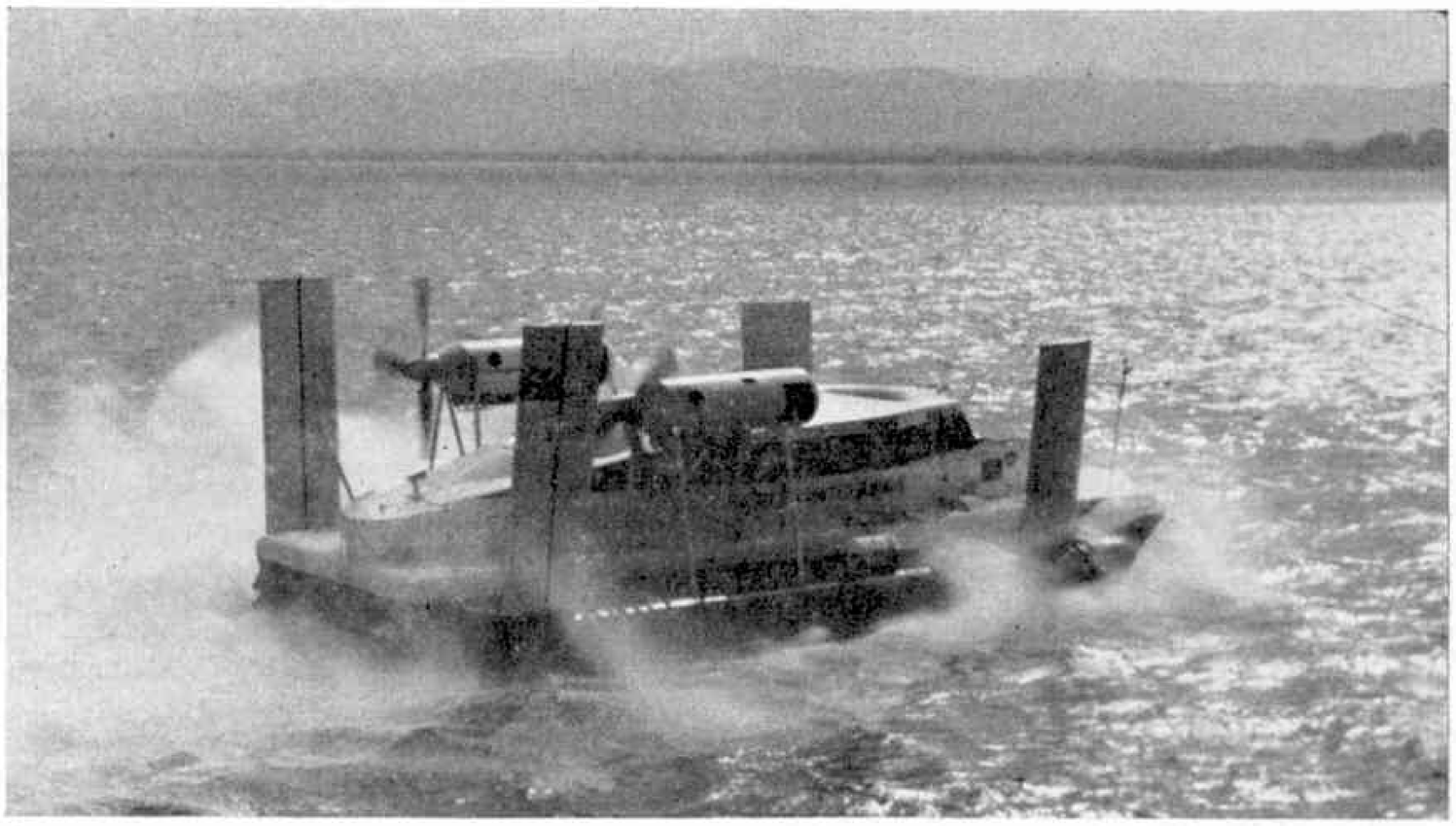
Forty-eight hours before the history-making trip of July 17 I had my first view of this intriguing new craft as I stood among the throngs who lined the banks of the Mersey to see the Vickers VA–3 make an exploratory trip to Rhyl. The craft had been shipped north to Birkenhead on the deck of a cargo vessel and was craned off into the waters of the dock. Then its driver, Captain Leslie Colquhoun, G.M., D.F.C., D.F.M., last war Spitfire pilot, and his co-driver, Assistant Captain Raymond Old took over. To a welcome of ships' hooters they moved the Hovercoach smartly down the Mersey past cheering crowds who swarmed to the rails of ferry boats or lined the Cheshire shore of the river. Flags waved and car hooters sounded as the Hovercoach

skimmed over a placid sea. In a cloud of spray she vanished from sight heading for the operational base at Rhyl.

The following evening I was myself on the way to Rhyl by train to take part in the first-ever passenger trip operated on schedule. The first two days of scheduled trips were, in fact, devoted to meeting the needs of the Press and the operation was planned with military precision on a massive scale. We were divided into parties—Red Party, White Party, Orange Party and so on, so that there should be no confusion at the terminal points, and here let me pay tribute to the manner in which Vickers-Armstrongs, who built the Hovercoach, and British United Airways, who are operating the service, coped with the problems of organisation.

Neatly-Curtained Windows

Early on the morning of the 17th Red Party, in which I was included, made its way to the shore at Rhyl to find the Hovercoach waiting to receive its first full passenger load. Trooping aboard we seated ourselves in the comfortable cabin, which has 24 seats arranged in four groups of three on either side of a central corridor. The seats are rearward facing, and are comfortable in the extreme. Separated from us in their control cabin were the driver and his co-driver, and adding a touch of homeliness to our unusual surroundings were neat curtains at the windows on either side of the saloon.



The engines were started. Quickly their splutter became a whine and we moved off at a smart pace across the shallow waters fronting Rhyl's wide promenade. There came a sudden surge as the Hovercoach got into its stride, and we really *were* away, following a course parallel to the Welsh coast at a speed which rose, in a matter of seconds, to something over 60 miles an hour. Spray flew upwards, showering the windows.

In the first few minutes there was little sensation of movement and it was hard to define the feeling—other than that of a natural elation—which filled one. But, as we came out into the sea and speed increased, the ride became bumpy, with some sharp jerks which brought a sense of realisation that we were taking part in an experimental trip in which the method of progression obviously possessed a nature of its own. Yet it was not in any way unpleasant. I could not truly relate the feeling to that of flying or sailing, but as we went on, with occasional bumps here and there, I realised that my nearest

Above: The Hovercoach throws up spray as it moves across the silver-rippled sea. Left: After the first scheduled passenger trip between the North Wales Coast and Wirral, the Editor of the "M.M." offers his thanks to Hovercoach steward Christopher Ashby. (Pictures by courtesy of Vickers-Armstrongs.) Below: Civic dignitaries were among early passengers on the Hovercoach service and in this picture the Mayor of Wallasey (Alderman E. Glynn Roberts) and the Chief Constable (Mr. Walter Marshall) are seen inside the comfortable saloon. This photograph and the portrait of Captain Colquhoun on the opposite page are by courtesy of Medley and Bird.

experience to such a ride was in the days when I used to go outboard racing on the River Ribble, and bumps and jerks were the order of the day as the tiny outboards hopped over the tops of the waves. But, of course, the Hovercoach cushions one from most of these effects and the deeply-reclining seats have great resilience.

We were able, during the trip to Wallasey, to glance inside the driver's cabin and see Captain Colquhoun and Assistant Captain Old at their intensive job. They were in touch at all points, by VHF communication, with their shore-based stations, and by a Decca Navigator Marine System which provided them with constant information on their exact position.

RAINBOW ISLAND?

Moving now rapidly to the end of the first leg of our trip, we passed close to Hilbre Island, a bird sanctuary and one of the most prominent features of the Wirral Coast. It might well have been called Rainbow Island, for at that point the sun, bursting out in brilliance, turned the fine cloud of spray which hung over and around us into a rich, seven-hued arc. Moments later we were heading straight for the Embankment at Wallasey, to land within the special enclosure outlined by marker flags.

The tide was lapping the wall, with its slope of one in five, as the Vickers VA–3 made an upward surge and flopped down on the concrete, rather like a huge sea monster that had travelled across the ocean and had settled for a rest in the sun. The trip had taken just 33 minutes, and our speed had varied mostly between 40 and 55 knots.

There was a brief pause before we slid back into the sea again and, within seconds, were roaring back to North Wales. The return ride took about a minute longer than the outward journey. The Hovercoach's windscreen wipers had ceased to function and this led to delay on the later trips that day. Consequently they were much more limited in scope than that I had been fortunate enough to experience.

CHEERS FROM THE CROWD

My memory of our arrival at Rhyl is of an odd feeling of moving straight out of the sea and over the sand as if it were of no consequence, of the dying roar of the engines as we came to our final halt, and of the massive crowd of holidaymakers who were there to greet us with cheers and more cameras than I have ever seen at any one time before.

So ended my first trip by Hovercoach. Considering that such transport is only in its initial stages, and that teething troubles are to be expected when invention is on the move in such a way, the journey had been a lively but pleasant one. Perhaps the most unruffled person in the saloon itself was the steward, Christopher Ashby, who by now must be quite accustomed to a mode of travel which will be a novelty to thousands of people for years to come.

Soon after the Hovercoach began its scheduled services across the mouth of the Dee, arrangements were made to carry mail and to post mail on the Hovercoach itself. Letters and cards posted in this fashion were specially franked on July 20th—the the day the public service started—with the Hovercoach emblem pictured on the left. All subsequent mail has normal franking. This reproduction was taken from a postcard sent to the Editor of the *M.M.*

Now to a description of the Hovercoach itself. The main structure consists of a buoyancy tank and ducting system with a bow to check wave impact. These combine to form a load-carrying platform which supports the power units and superstructure, and the construction is chiefly of aluminium alloy which reduces its weight to a minimum. The buoyancy tank, situated low in the structure, can support a weight twice that of the fully-loaded craft, besides giving adequate stability in rough water. Additional buoyancy is provided by sealed compartments in side walls and around the fore and aft transverse airducts.

A THREE-FOLD SERVICE

In the cabin itself the seats are upholstered in silver grey and red and are fitted with arm rests. Two large waterproof doors give quick access and insulation is provided by double-glazed windows. Ventilators in the ceiling direct a stream of cool air into the cabin itself.

Length of the Hovercoach is 54 feet 9 inches and she is 26 feet 11 inches wide, with an overall height of 17 feet 9 inches. Total all up weight is eleven tons.

The machine is powered by four Blackburn 603 Turmo gas turbines, two of which provide the lift, and the other two mounted at the rear, the propulsion.

The Vickers VA–3 was planned for a threefold service—to obtain operating data of value in the design of larger craft, which are already planned, to fulfil a useful commercial purpose, and to demonstrate the practicability, and the speed-with-safety factors, of these remarkable vehicles.

The service across the Dee has run into a number of problems since the initial journey I have described, but it must be remembered that it is purely an experimental service operated with an eye to the future. The BP Company, who are supplying fuel and lubricants during the eight weeks in which the service is to operate, have made a close study of the special fuel requirements of the new craft. In addition, in conjunction with Vickers themselves, they are studying ways in which the Hovercoach may be used for such important duties as oil exploration in remote swamp and desert regions where transport is often an enormous problem.

There are already designs for a 100-ton model carrying up to 20 cars and 200 or 300 passengers, capable of dealing with waves up to ten feet high . . . but this is for the future. For the present, let us be grateful to those who have made such a successful study of this fascinating method of progress and wish them well in their further endeavours.

BOOK REVIEW

The British Locomotives Shed Directory (Railway Publications Ltd., price 3/6d.) This is the eleventh edition of a useful publication compiled by Aidan L. F. Fuller, F.C.A., the publishers being a subsidiary of the well-known Ian Allan organisation. Although locomotive sheds and works are usually visible enough from the railway, it is sometimes another matter to find how to get to them, particularly when one is a stranger in the district concerned. Therefore the details given in one section for finding the various locomotive sheds of the different Regions of British Railways are of interest to all who wish to visit such places, as are those in another section covering the various locomotive works.

A further section gives directions for using the public transport of eight large cities to local sheds or works and includes suggested itineraries for a round of visits in particular areas. Finally, a list is given of the appropriate officers of British Railways to whom applications should be forwarded for the official permission necessary to make such visits. The book is useful to the individual enthusiast, and indispensable to the secretary of any society or organisation of railway or miniature railway enthusiasts.

COASTER COMMENTARY

FOR a number of years, the Lamport & Holt Line, Limited, of Liverpool have supplied a service between Great Britain and Paraguay, capital and port of which country is Asuncion, some 880 miles upriver from Buenos Aires. The normal navigational limit for ocean-going vessels is Santa Fe but Asuncion, which is a little over 100 miles below the Tropic of Capricorn, is still another 500 miles or so further up the Rivers Parana and

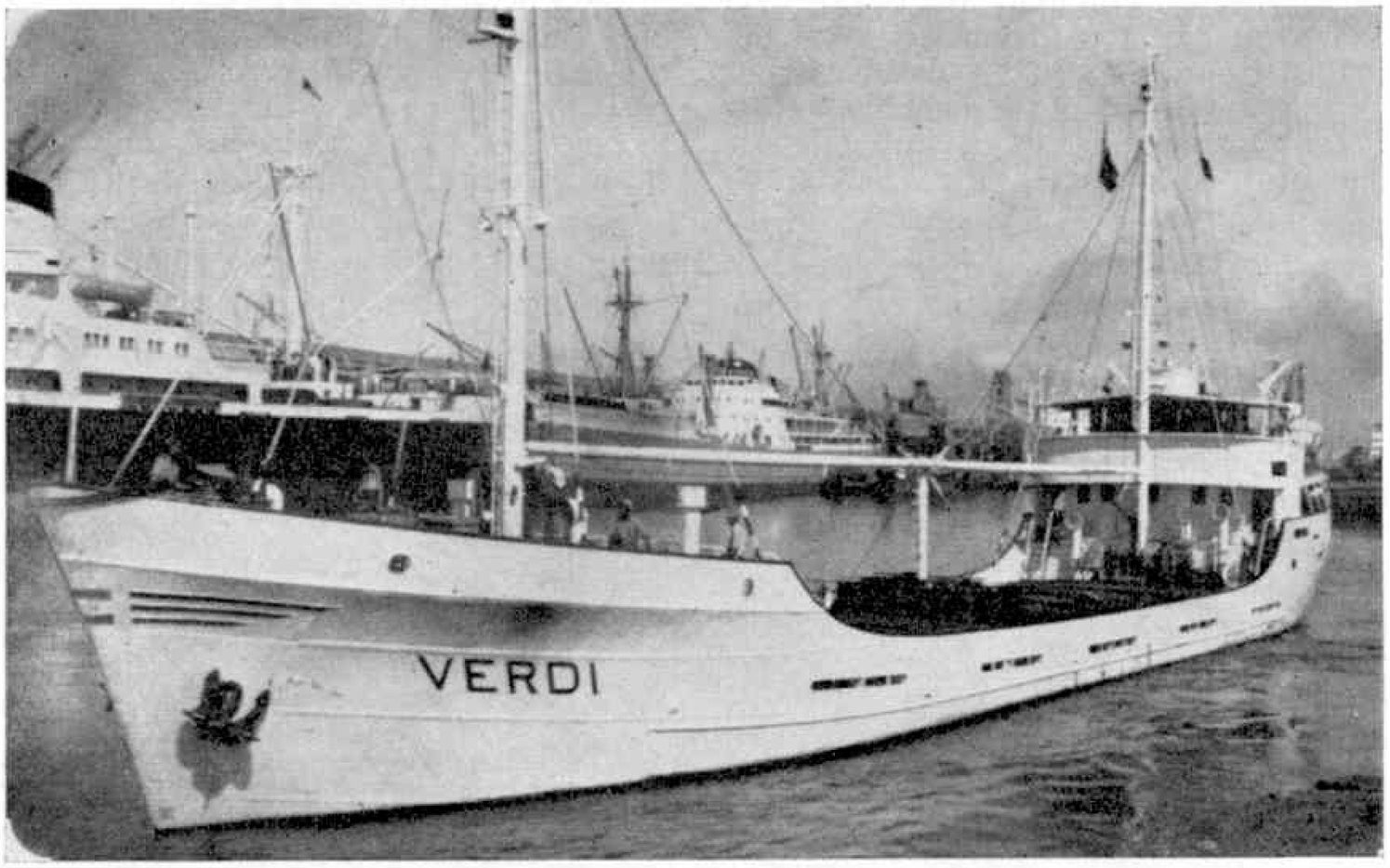
Robert Gore Writes About

Voyaging To The Southern Hemisphere

Paraguay. Originally this meant that British exports destined for Paraguay were sent out to Buenos Aires, and transhipped at that point to a river steamer for the completion of the voyage. Double handling of the merchandise was involved and in order to overcome this difficulty and, in addition, the shallow draught of the River Paraguay the shipowners decided to open a direct service to Asuncion. The answer to the problem, as you may have already guessed, was the introduction of a smaller vessel for the whole voyage, and for this a coaster was chosen.

It was in 1955 that the Lamport & Holt Line purchased the *Hermes*, a ship then one year old. Built in Holland with a gross registered tonnage of 571, a length of 183 feet, and a breadth of 30 feet, she entered the service of her new owners under the name of *Verdi*. Essentially, she has the usual coaster appearance, with a well-deck and holds amidships served by two masts and derricks; but this may be a case where, because of the duties she undertakes, a coaster may not be a coaster! However, she will serve as an admirable example of the important jobs done by these grand little ships, several of which are regularly trading in distant waters.

Top: The m.v. *Verdi* loading cargo for Paraguay at the South West India Dock, London. Photograph by P. Kershaw. Below: A general view of the *Verdi*. Pictured in the top panel is the house flag of the Lamport and Holt Line.



A look at a map of the Atlantic will show that from the British Isles the course of the main part of the voyage to the River Plate is south south-west. It must be quite exciting to contemplate such a long passage from the northern to the southern hemisphere in a coaster, but still more thrilling and interesting if you are fortunate enough to be on board.

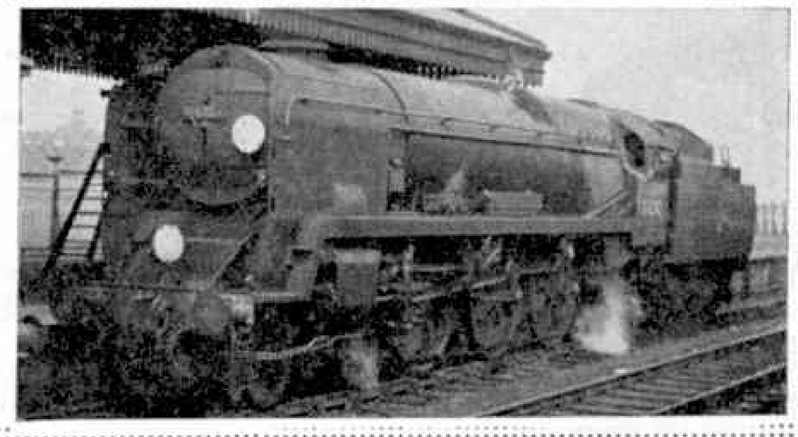
Sailings take place from London and/or Liverpool when the first port of call for bunkering the vessel is at Dakar on the coast of Senegal, West Africa. This section of the voyage covers approximately 2,500 miles and takes 11–12 days. From Dakar the *Verdi* sails some 3,800 miles during the course of 17–18 days to Montevideo where further bunkers, and river pilots, are picked up for the remaining 6–7 days of river navigation.

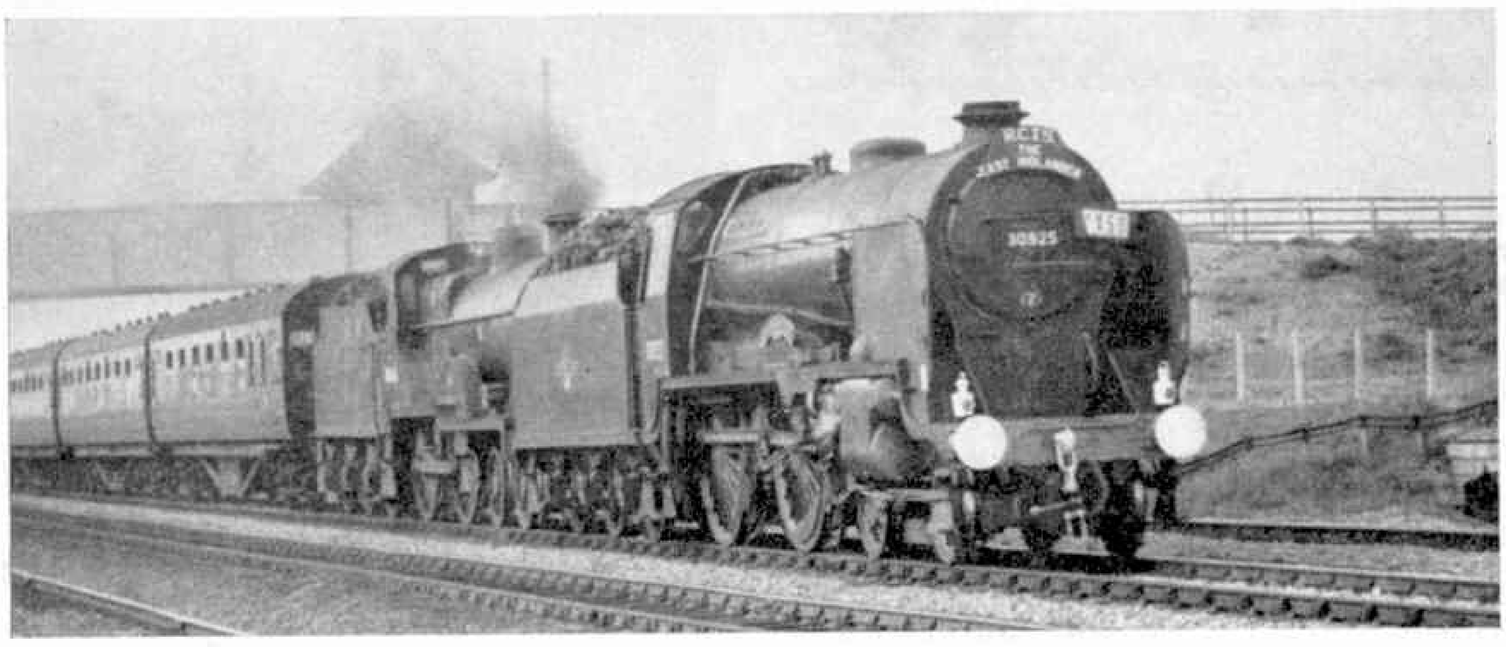
Pilots from Montevideo are usually landed at Parana, the Paraguayan pilots proceeding with the ship upriver to Asuncion. The cargo on the outward passage normally consists of manufactured goods from the United Kingdom. On the return trip canned meat and other packinghouse products are brought home.

You may notice that the *Verdi* carries a crest on her stem that is really a replica of her owners' house-flag where the letters "L+H" are in black on a white band between two red ones. Stem-crests make an interesting subject about which more can be written in the future.

RAILWAY NOTES

Contributed by R. A. H. Weight





NEW AND OLD ON THE SOUTHERN

I HAVE been able to observe the successful operation of the entirely revised, faster and more frequent electric passenger service introduced during June on the main London–Folkestone–Dover and associated secondary lines. This links up with the previously-completed Chatham–Faversham–Ramsgate scheme to provide a splendid network throughout Kent and parts of the London suburbs, as I described in a preliminary summary published in the May *M.M.*

Tonbridge is the first important country-town double junction on the Folkestone trunk route from Charing Cross or Cannon Street. Several non-electrified routes converge there. At the west end of the station these are from Redhill, Surrey, and the Central Division. At the east end they are from Hastings and from the Oxted lines, via Tunbridge Wells. Although no new platforms have been provided, track rearrangements enable down coastward trains to depart from the Up island platform in the Tunbridge Wells or Paddock Wood (main line) directions. I saw one four-coach electric, and one new three-coach diesel-electric, both multiple-unit trains, reverse and restart their journeys in that way.

A B.R. class 4 2–6–4 tank locomotive bound for Brighton, one of four seen in an hour-and-a-half on "branch" train services being gradually dieselised, also arrived at No. 1 platform from Redhill. It then continued straight ahead without having to cross any of the main line tracks. There were diesel locomotives on freight—they also work parcels, and a few cross-country passenger trains—and an electric locomotive on its way from Dover to London stopped to attach further vans to its train and load parcels and mail.

During a busy evening hour, thirteen main line electric or Tunbridge Wells route diesel trains stopped, or passed through. Some principal-stations electric services attach or detach a portion at Tonbridge, this forming a separate part-way stopping train.

At Ashford, 26½ miles further on, there is also a good deal of combining and dividing of express and slower electric trains. New reversible working is now possible on the down side. The platforms have been reconstructed to eliminate the old terminal bays and permit through tracks on either side and, as at Tonbridge, there are fast lines through the middle of the station, not served by platforms. The re-sited offices, waiting rooms, etc. are not yet completed. Maidstone (East) and Canterbury (West) through secondary electrified tracks join the main line near the west and east ends of the station respectively. The junction for the non-electrified Hastings and New Romney routes is also at the east, or Folkestone, end. Diesel or other trains can therefore run in and out without crossing the main lines, calling at the Up platform.

The one steam locomotive in action that I saw at Ashford, for station shunting, was a C class 0–6–0 built around 60 years ago. Three sister engines, standing dead in the Locomotive Works yard, were the only occupants of those sidings, close to the main line, so often occupied in the past by shining new or reconditioned locomotives. And there was only one steam locomotive outside the Shed.

S.R. 4–4–0 No. 30925 " Cheltenham" (above) in an unusual location, near York, piloting L.M.R. No. 40646 on a R.C.T.S. Special returning to Nottingham. Photograph by C. Ord. Right: The bulky bogie tender from a withdrawn Lord Nelson 4–6–0 somewhat reduces the massive aspect of No. 30912 "Downside" in this photograph by M. Edwards. Our heading block, from a photograph by John Lake, shows West Country No. 34097 "Holsworthy".

These two pictures, by S. Creer, show current and former motive power on the "Golden Arrow". On the left, electric locomotive No. E5015 heads the train at Beckenham Junction, while No. 34100 "Appledore", in the right-hand picture, is climbing Hildenborough Bank on the last day of steam operation on this train, in June 1961.

Folkestone Central Station has been transformed into a most impressive four-track edifice high on the embankment, as part of the line widening scheme through Shorncliffe where there has also been considerable station modernisation. This provides more opportunity for fast trains to overtake slower ones, more accommodation for specials and so on. Colour light signalling, route indicators, track circuits and the latest type of power-operated signal boxes, controlling long stretches, allow fast running to be maintained safely with close headways.

Several Continental expresses to and from London Victoria and Dover or Folkestone Harbour passed through. They were formed of electric multiple-unit sets with a powered van for luggage, which I described in the previous contribution, as now regular practice on the considerably accelerated timings made possible by dint of higher uphill speeds and faster starts.

The Golden Arrow, still formed mainly of luxurious Pullman cars, shares the quickest 82-minute allowance over 78 miles from London, Victoria, to Dover, Marine. The *Night Ferry* uses the severely-graded Maidstone route, two miles longer, between Bickley Junction and Ashford, and is usually a very heavy train including through sleeping cars to and from Brussels and Paris. It needs the considerable power of the E5000 class electric locomotives, which look rather smaller than the type 3 diesels and are painted a lighter green. One of the same class hauls the *Golden Arrow*.

OCTOGENARIANS TAKE CHARGE!

The Hayling Island branch connects at its own platform at Havant, not far from Portsmouth, with—especially at summer week-ends—one of the busiest electrified provincial main lines in the world, carrying frequent Portsmouth trains on London (Waterloo) and Brighton routes. The branch is operated entirely by diminutive "Terrier" 0–6–0Ts built originally for London suburban service by the former London, Brighton and South Coast Railway. Nothing heavier is permitted over a rather slender bridge crossing part of a tidal harbour. It is largely a picturesque waterside trip of four-and-a-half miles, with two intermediate halts on single line. The increased Saturday–Sunday service during the holiday season gives a half-hourly departure from each end. Alternate trains make the run non-stop in ten minutes.

I travelled outward behind No. 32640, once named *Brighton*, now un-named, built in 1878. On the return trip the engine attaining around 35 m.p.h. was the two-years-younger No. 32678, the former *Knowle*. The last-named carried a different number and name when employed for a long while in the Isle of Wight. The oldest "Terrier," No. 32636, will, it is hoped, celebrate its 90th birthday this year! It is the oldest active B.R. locomotive.

ENTHUSIASTS' SPECIALS

Periodic features of the railway scene nowadays in various parts of Britain are the special tours, some of which are quite extensive, organised by the various enthusiasts' and railway preservation societies. Fortunate members and friends able to be aboard may traverse unusual routes, often including sections of line not used normally for ordinary passenger traffic. Fine scenery and centres of special historic, operating or exhibition interest are often included, too!

The steam locomotives employed are very often exceptional for the routes concerned. The two very different 4–4–0s appearing in my first illustration this month made a very fast start-to-stop run with "eight-on" along the famous high-speed section of the East Coast route, from Darlington to York, in a time fully equal to the best regularly scheduled for Pacifics. This tour included the Sheffield and Harrogate areas, Darlington Works, and the York Railway Museum and Running Shed.

Starting from Waterloo and finishing at London Bridge, the last two-cylinder 4–4–0 on the S.R., the rebuilt T9 lately running as No. 30120 and now restored in bright green livery as L.S.W.R. No. 120, toured some of the prettiest parts of Surrey and Sussex, comprising single branches, sections of coast and main lines with some severe gradients. A K class, ex-L.B.S.C.R. 2–6–0 took over part way.

Sometimes tank or goods engines are employed for certain sections on such trips. An M7 ex-L.S.W.R. 0–4–4T attached in front at Eastbourne assisted No. 120 up the steep climbs of the wooded "Cuckoo Line" to Rotherfield, on the way to East Grinstead.

A UNIQUE EXCURSION

The *Aberdeen Flyer* was a unique excursion trip in June covering more than 1,000 miles in two days. It was hauled by 4–6–2 *Mallard* from King's Cross to Edinburgh on a non-stop booking similar to that of *The Elizabethan* in 1960–1. It made very good time although there was a halt for signals due to a freight train ahead having been delayed.

Another A4—*William Whitelaw*—carried on over the hard route to Aberdeen, with a call at Dundee to fill up with water. Sleeping cars increased the load for the return journey, begun the same night, and travel was by no means as brisk. Two more Pacifics, this time L.M.R., of the original Stanier series, Nos. 46201, *Princess Elizabeth* and 46200, *Princess Royal* respectively were the engines from Aberdeen to Carlisle and Carlisle to Euston. These may well have been the last long Anglo-Scottish express runs with steam haulage throughout.

The splendidly-preserved veteran Scottish locomotives carrying their old company styles of painting, lettering and numbers, have shared the working of various specials north of the Border. In a number of cases two together have been used to provide adequate power. The engines are: the former Highland Railway pioneer 4–6–0 No. 103; Caledonian 4–2–2 No. 123; 4–4–0s: North British No. 256, *Glen Douglas* and Great North of Scotland No. 49, *Gordon Highlander*.

DINKY TOYS NEWS

A happy picture of Dinky Toys enthusiast Jeffrey Ballance, of Plymouth.

A Streamlined Ambulance

OPENING REAR DOOR AND A MOVABLE PATIENT

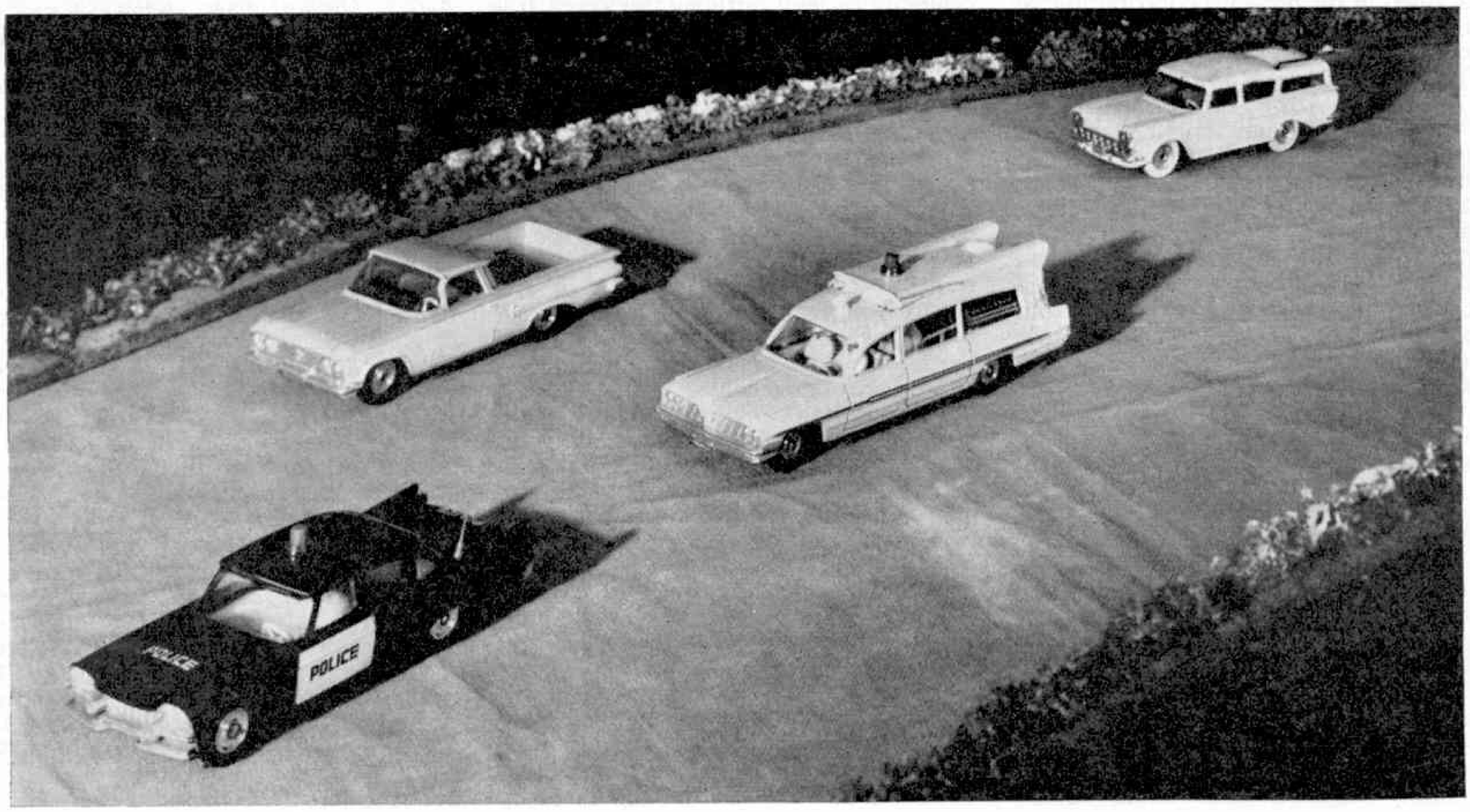
ALL my readers, I feel sure, will have seen television programmes which deal with American doctors and hospitals. In fact, one such programme was recently voted among the top TV shows, and its theme tune became a hit record. Viewers of this programme will almost certainly have noticed the types of ambulances in use in the U.S.A. Indeed, with their flashing light and wailing siren they can hardly be missed! And even when light and siren are switched off they cannot be mistaken owing to their sleek and distinctive lines.

BY THE TOYMAN

The rôle the ambulance plays in the community has always been a most important one, and in these days of growing road hazards no one can put too high an assessment on its value. Since it is integral with present-day events, it naturally falls into any miniature road scheme built up with the use of Dinky Toys.

There has, for a long time, been a Daimler Ambulance (No. 253) on the Dinky Toys list. Now we are introducing a streamlined ambulance of American design, which should prove most attractive to collectors everywhere and find a ready place in their schemes. It is Dinky Toys No. 263 Superior Criterion Ambulance. This, of course, is illustrated in our latest Dinky Toys catalogue, which is already in the possession of thousands of our collectors, and many have written to me offering their compliments on the very stylish lines of this new model which possesses new and quite fascinating features about which I will deal in the course of these notes.

Speed and a clear road are two essentials when there has been a mishap with serious consequences. In this picture the Superior Criterion Ambulance is speeding on its errand of mercy along an American highway, preceded by a police car to clear the traffic.



In this close-up of the Superior Criterion Ambulance you see the blanket-wrapped patient lying on the stretcher. Note the rear opening door of the ambulance.

It might be that you would like to know something first about the actual vehicle. The bodywork is manufactured by the Superior Coach Corporation of Lima, Ohio, U.S.A. and the chassis and engine are supplied by the Pontiac Motor Division of General Motors Corporation, Pontiac, Michigan, U.S.A. Its overall dimensions are rather unusual, for it is 20 ft. long, 5 ft. 10½ in. high, and 6ft. 8¾ in. wide with a wheelbase of 12 ft. 2 in. The particular vehicle represented by the Dinky Toys model is a "Super Headroom" model, with headroom clearance of 3 ft. 10 in.

Power is supplied by an o.h.v. V–8 engine with a capacity of 289 cubic inches. Transmission can be either synchromesh or automatic, as required, but the synchromesh develops a brake horse power of 281 at 4,400 r.p.m. whereas the automatic develops 303 b.h.p. at 4,600 r.p.m. Pontiac do supply a few other parts, namely the bumpers, fenders, bonnet and dashboard instruments and controls, but the remainder are by Superior.

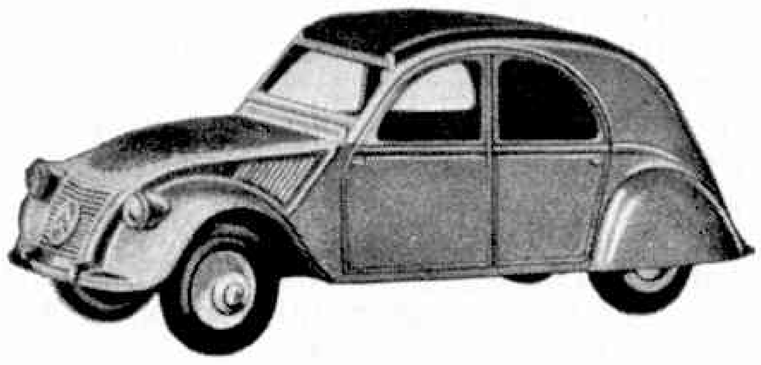
So much for the actual vehicle; now, what about the Dinky Toys miniature? This can be summed-up in one word—wonderful! Perhaps this may seem an exaggeration, but in my opinion the Superior Criterion Ambulance is indeed a marvellous little model. Not only is it attractive in outline but it has a novel feature in a blanket-covered patient on a stretcher who can be taken out of the model through the opening rear door. In addition, the patient can actually be lifted off the stretcher.

In accordance with normal practice the model, finished in a cream gloss with a red stripe along each side, is fitted with finger-tip steering, windows, seats, steering wheel and 4-wheel suspension. It also possesses a driver and attendant, both dressed in white uniform. On the roof are an imitation red warning light and a siren. On the actual vehicle, the siren is operated either by a control on the horn ring or by foot-control, so that it can be switched on and off easily without causing the driver to take his attention away from the road.

From Barking, in Essex, comes this picture of another Dinky Toys collector, B. May.

On each rear side window the model carries a modern-looking "ambulance" transfer in red and white which fits in well with the general design of the vehicle.

Our illustrations show off the model quite well, particularly the close-up which reveals rear door detail and shows the patient on the stretcher.



Two more Dinky Toys models from France now available in this country are No. 535 2 C.V. Citroen (left) and No. 518 Renault (above).

And now I want to describe two more vehicles on which new Dinky Toys models recently imported from France are based. The first is the Renault R4L Saloon (Dinky Toys Model No. 518) which is powered by a four-cylinder engine of 747 c.c. capacity, developing a brake horse power of 26.5. Dimensions are: length 11 ft. 11 9/10 in., width 4 ft. 10⅛ in., height 5 ft. 0 3/10 in.; wheelbase 8 ft. 0 1/5 in. Although this vehicle is a little spartan in appearance, having a van-like body fitted with three windows each side, it is very comfortable and offers excellent all-round vision.

The prototype of model No. 535, the 2 C.V. Citroen, is the other vehicle from our Bobigny factory I have chosen to describe this month. This is a four-door convertible saloon having a canvas roof which can be rolled back. It is powered by a 2-cylinder engine of 425 c.c. which develops 12 b.h.p. For the record, its overall dimensions are: length 12 ft. 4¾ in; width 4 ft. 10 3/16 in; height 5 ft. 3 in; wheelbase 7 ft. 9 5/16 in. Cheap and utilitarian this vehicle none the less has the reputation of being extremely comfortable and, I understand, gives excellent service.

Finally this month, I would like to give some of my younger readers one or two hints on how to make Dinky Toys layouts. Autumn is already here and many collectors will soon be considering plans to keep them occupied on the long evenings ahead. The exact type of layout to be modelled depends to a large extent on the space available and the vehicles, buildings, figures, etc. the collector possesses. Generally, if the layout is to be permanent a strong baseboard is necessary and this can be made from plywood or hardboard, strengthened by battens.

For temporary effect only, sheets of paper or cloth may be pressed into use. If the layout is laid on shelves giving, say, two long stretches of roadway it is a simple

(*Continued on page 380*)

NARROW-GAUGE LINE IN THE BLACK FOREST

By OTTMAR HESS
(Translated by Joan and Philip S. Pargeter)

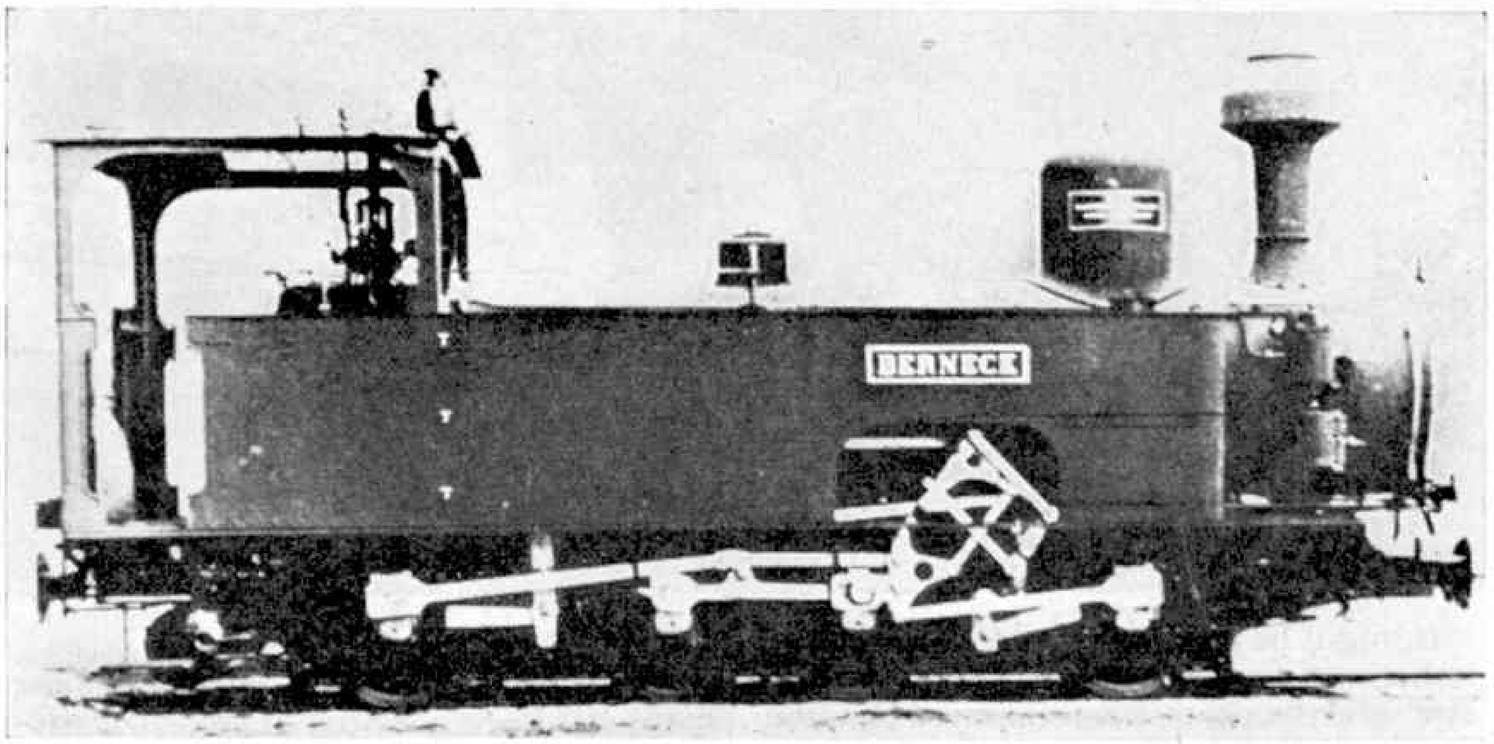
THE former kingdom of Württemberg possessed about 400 kilometres of railways at the time that it became imperative to open up the western part of the Black Forest. The reasons for this were mainly agricultural. Until then, this part of the country was served only by carriers' wagons, and railway access appeared to be uneconomic. However, the government decided to relent when the timber producers pressed for facilities to transport wood by rail instead of by the narrow, but rapid rivers, the Nagold and the Enz.

* * * *

In 1872, therefore, the first railway was built from the focal point of Stuttgart right into the heart of the lower Black Forest, that is, to the town of Nagold, which lies on the little river of the same name.

In the following years, the inhabitants of the Nagold Valley again clamoured to be given a railway. However, as in parsimonious Württemberg the cost of railway construction had to be set against the revenue-earning capacity of the railway, it was decided to lay a narrow-gauge line from Nagold to Altensteig, 15.2 kilometres distant, where the valley ends and gives place to a thinly-populated upland plateau.

This first and only narrow-gauge line in Württemberg, with a width of one metre, was opened on September 29, 1891. Construction proved expensive because the connection with the standard-gauge had to be made by means of a long approach gradient. Intermediate stations were built at Rohrdorf, Ebhausen and Berneck (with its old castle), together with the terminal station, Altensteig.



Locomotive No. 2 "Berneck" built in 1891 by the Esslingen Machine Works, in its original form with centre buffers. It still acts today as a reserve, under number 99.172.

Those who appreciate technical details will be interested in the photograph of the *Berneck*—one of the earliest narrow-gauge locomotives. It was a completely new design with a weight in working order of 28.9 tons and a boiler pressure of 176.4 pounds per square inch—something which had hardly been attempted until then. The driving wheels measured 900 millimetres in diameter. The coupling gear is noteworthy as at that time laterally-moving axles were unknown.

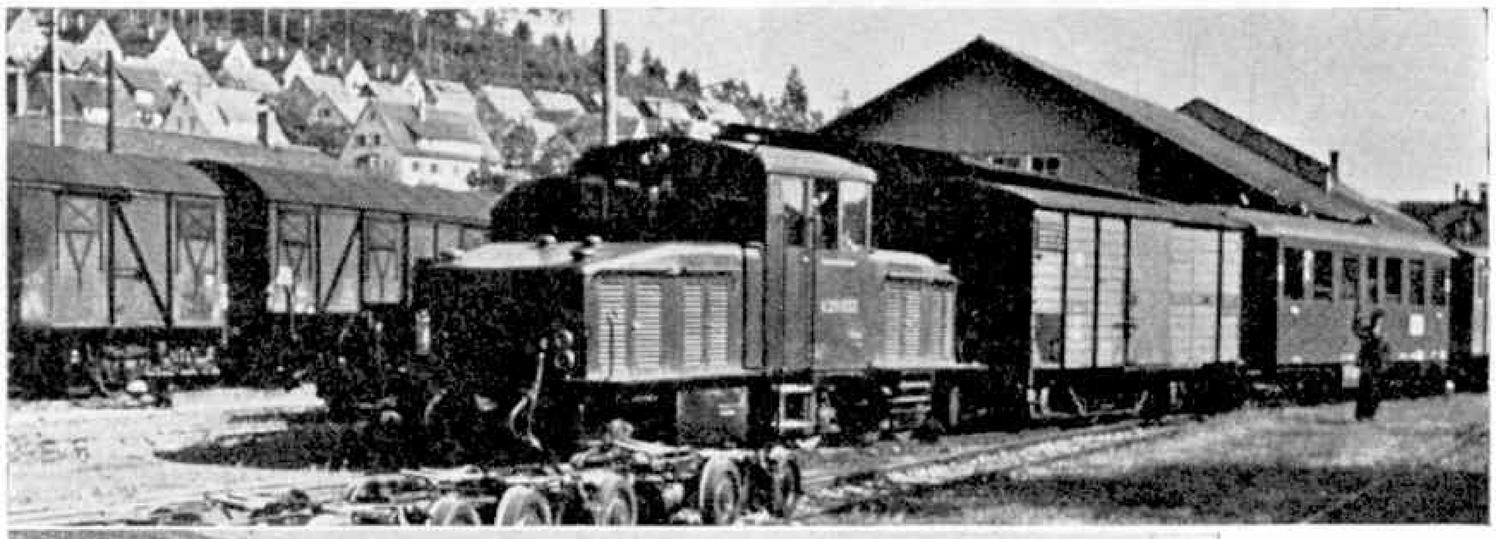
As the railway had to follow very narrow radius curves, the driving gear was divided through the insertion of a parallelogram motion. Thus, as the driving gear was extended on the one side, it was shortened on the opposite side. (Württemberg constructed a standard-gauge locomotive on this principle.)

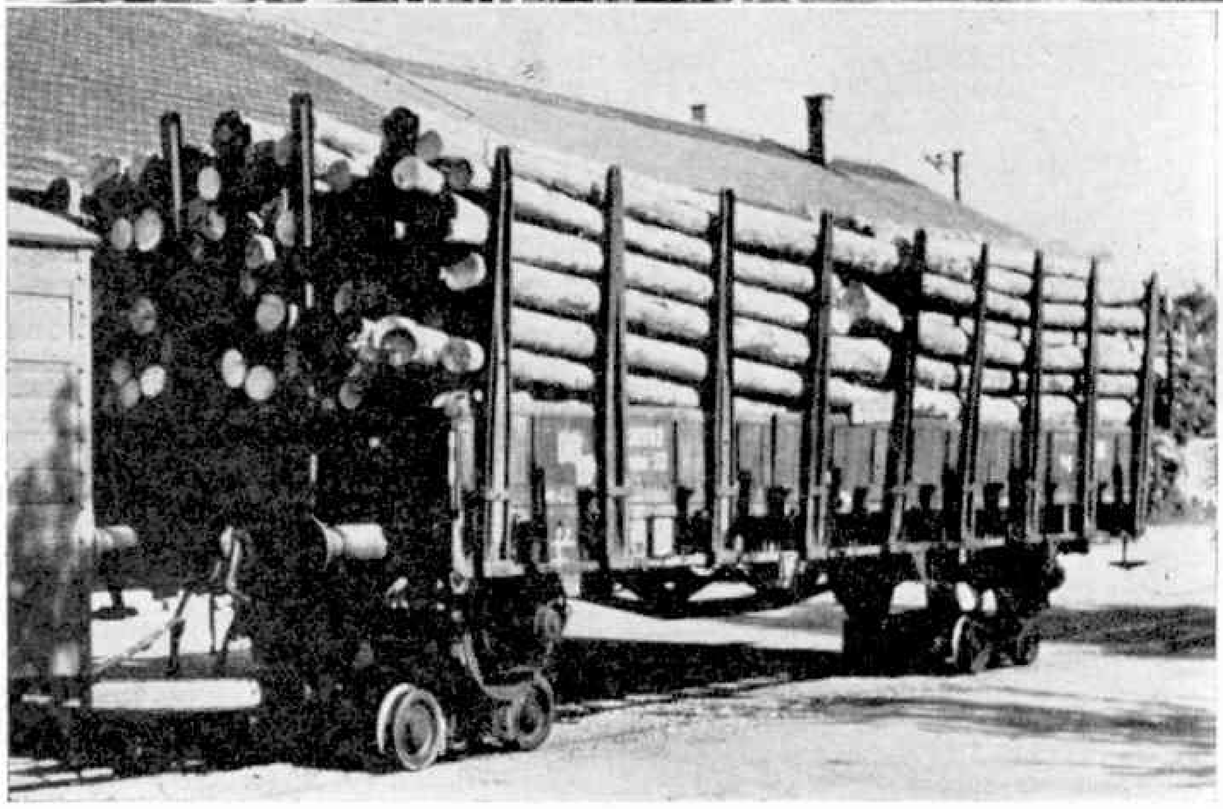
* * * *

Three locomotives were kept in operation on the Altensteig line, all of which were rebuilt about 1900, or rather they received casings over the driving gear. The spark-arresters were also removed, although the line had to operate along the only main road in the valley. One of these locomotives still stands in readiness as a reserve, although in more recent years modern substitutes have been introduced.

This interesting narrow-gauge railway has also been used as a testing ground in recent times. There was no other opportunity for a first trial journey, other than over the Nagold–Altensteig line of similar gauge, for a diesel locomotive from the Maffei-Werke in Munich which was intended for South Africa, and which has the so-called Cape gauge of 1,067 millimetres.

(*Continued on page 380*)





A train on the Nagold-Altensteig railway (above) on sidings at Nagold beside the German Federal Railway standard-gauge lines.

A standard-gauge wagon carrying timber mounted on narrow-gauge bogies. A special draw-bar connects the wagon to the rest of the train, and a long flexible connection enables the bogies to be braked.

WITH THE SECRETARY

Club and Branch News

Fine Progress in Western Australia

THE Meccano and Hobbies Club (Inc.) at Maylands, in far-off Western Australia, has long been noted at Headquarters for its excellent programmes and splendid organisation. It functions under the benevolent eyes of an enthusiastic Parents' Committee, and the latest practical outcome of this very happy association is the provision of new, and larger, Club premises which were put into service on June 1 last.

In a most interesting report just received, Mr. Trevor Criddle, the Club Secretary, tells me that the official opening ceremony and annual presentation night were combined on June 29 "when members were presented with their awards for 1961 by our old friend and member, Mr. G. Winnett". Many of the Club's old members and supporters were among the 150 people present, including one who had been a member in 1935, the Club's opening year.

"Our representatives from both houses of the Western Australian Parliament were present, and one of them—the Hon. H. R. Robinson, who is also President of the local shire Council—performed the opening ceremony," adds Mr. Criddle. "In his speech he said that although there are many other boys' clubs in the 44 square miles of the Council territory, this Club is unique in that it is the only one catering for the hobby-minded boys of the district. He congratulated the Parents' Committee and the members on the completion of their new Clubrooms."

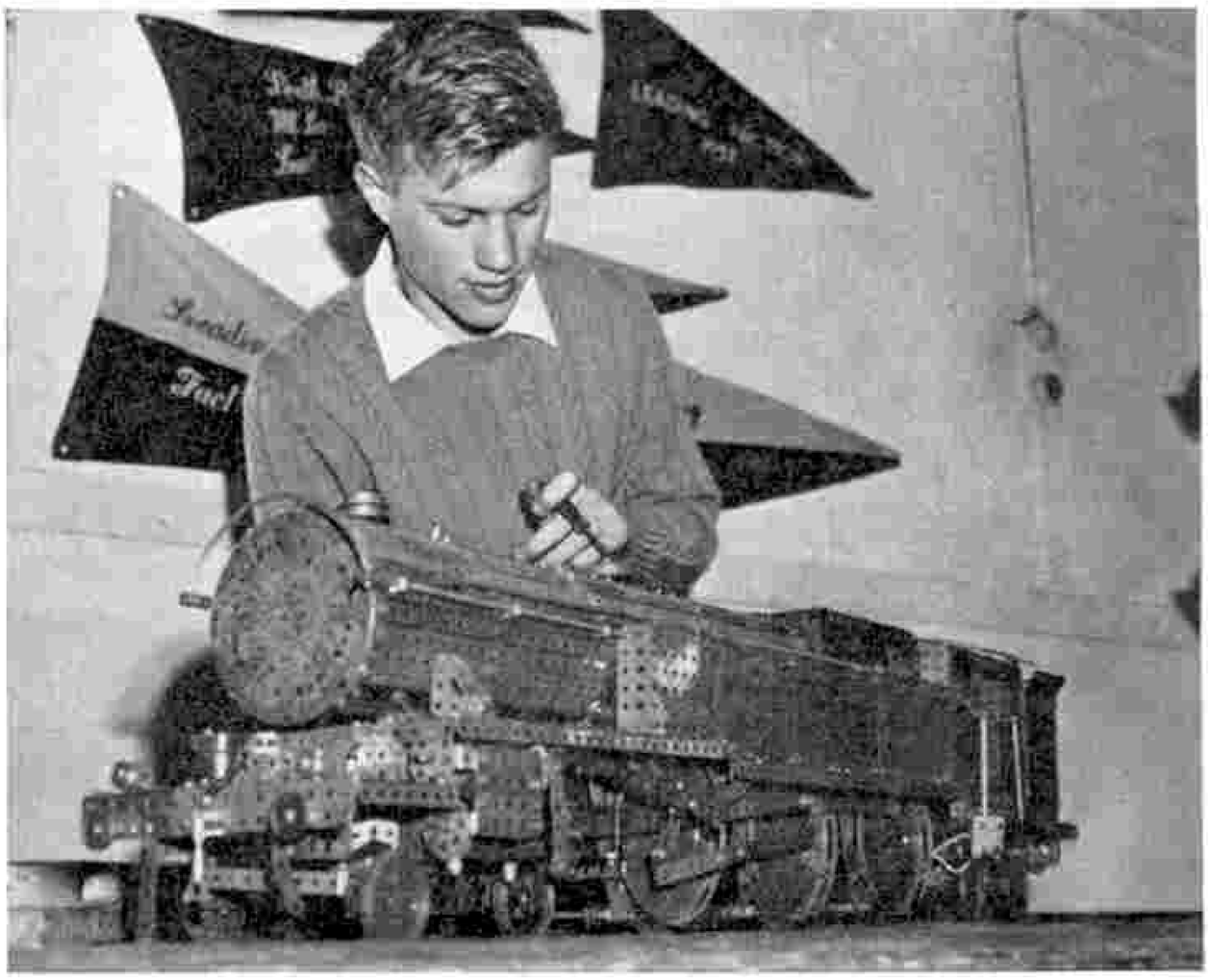
A move like this is an excellent stimulus, and Mr. Criddle goes on to say, "We are certainly feeling the benefits of the larger premises for which a generation of Club members have been waiting. Model-building started with a swing at our opening meetings, and the influx of twenty new members in the first month has given the Club a very good start in its new home. Although only a few experienced model-builders are left, the quality of the work done by the majority of the members is very good, and the Leader has high hopes of seeing better models than ever being built within the next two years.

"Naturally, there is a lot to do, cupboards and new tables to make, and a general re-organisation of the Club so that all may benefit. Television is still affecting our evening attendances, but the boys make up for this by attending the Saturday day sessions, which run continuously from 9.30 a.m. until 5 p.m. One of our members moved to Fremantle during the break, but he is still attending regularly. Several of the younger members face a three-mile cycle ride to our meetings, and two boys have a twenty-mile car ride to get there."

There's enthusiasm for you!

CLUB NOTES

SHEBBEAR COLLEGE (BEAWORTHY) M.C.—The Secretary is completing the big lorry model during the summer holidays, and several members have begun constructing a small motor driven lorry which will be fitted with a differential gear and steering and reversing gear. *Secretary:* M. R. J. Kent, Shebbear College, Beaworthy, N. Devon.



Alan Vidler, of the Maylands Meccano and Hobbies Club (Inc.), Western Australia, with his fine model of a Baltic Tank Locomotive, which was included in the Club display at the Australian Railway Historical Society's Exhibition last year. This is one of the models members must build to gain their Club "A" construction certificate.

BURY Y.M.C.A. M.C.—At a presentation Sportsmans' Supper held recently awards were presented in respect of Meccano model-building, Badminton, Boxing, Wrestling, Swimming, Football and Table Tennis; an Essay competition in connection with a trip to the Manchester Ship Canal, and the Sam Taylor Trophy to Telford House. *Secretary:* Ron Morris, Bury Y.M.C.A., 111 The Rock, Bury, Lancs.

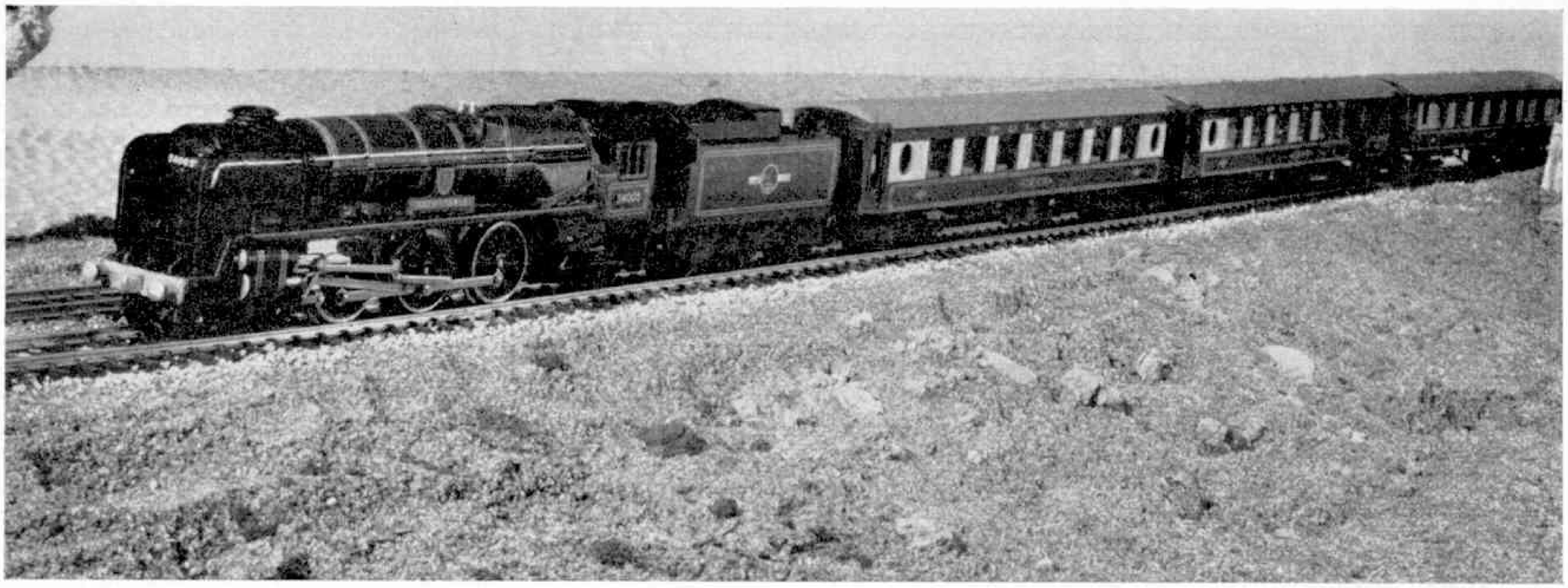
NEW ZEALAND

CHRISTCHURCH M.C.—Meccano model-building has continued to be the main activity, with such subjects as a "mystery model", "Army and Navy" model, and "a model built from memory" producing excellent results. The subject of another model-building Evening was an *Engineer's Workshop*, and the models completed during the meeting included lathes, drills, fretsaws and a gantry crane. On another occasion J. Hardwicke gave a talk on *Levers*. A total of 33 persons attended a Parents' night, when slides were shown, talks given, games played and competitions held, and there was an excellent supper. *Secretary:* David Archer, 33 Evesham Crescent, Spreydon, Christchurch 2, New Zealand.

ST. JOHN'S (ROSLYN) M.C.—Three new members have been enrolled. At the June 1 meeting ex-Secretary William J. Earl was presented with a Medallion in appreciation of the excellent service he gave in that capacity. The Secretary of the Christchurch M.C. was a visitor, and he was introduced to the members who had an interesting discussion with him. Members have been busy building models for display at an Exhibition. At one meeting, an article about the Exhibition which appeared in a local newspaper, *The Evening Star*, was read, and arrangements for the Club display were finalised. At the final June meeting N. Ritchie brought along a model lighthouse, which it was agreed was an excellent subject to build from a No. 6 Outfit. *Secretary:* M. J. Salinger, 8 Maheno Street, Dunottar, Dunedin, New Zealand.

BRANCH NEWS

KESWICK (WEMBLEY)—On the occasion of a recent Open Night seven visitors were entertained with a 1½-hour programme during which the Branch layout was fully demonstrated. The Branch have added a new Hornby-Dublo S.R. Corridor Coach to their equipment, and new trucks purchased include the packing, gunpowder and banana Vans. *Secretary:* P. Walker, 17 Keswick Gardens, Wembley, Middx.



SOUTHERN SCENES IN MINIATURE

THE pictures that I have for you this month suggest several topics that I hope will be of interest, so let us begin right away with the striking scene in the illustration above. There we have in miniature a "coastal" stretch of railway, along which a train of Hornby-Dublo Pullmans headed by S.R. 4–6–2 *Barnstaple* is passing. The splendid Hornby-Dublo Pullman Cars have become familiar on many layouts, particularly in conjunction with the S.R. West Country Locomotives *Barnstaple*, in Two-Rail, and *Dorchester* in Three-Rail form. Certainly many miniature layouts have been started with the fine *Bournemouth Belle* Train Set, in which the *Barnstaple* locomotive and three Pullmans are included. Apart from the use of these components to represent the named train in question, they can be employed in a variety of ways by the keen operator.

Most Hornby-Dublo owners add to the standard formation of rolling stock included in any particular train set, and I think that this must have been done in the case of the Pullman train shown in the picture above. The presence of a First-class Pullman behind the Brake–Second, the second vehicle in the train, suggests that there is a further length of train to follow, which it was not possible to include in the picture. Certainly the first two vehicles, a Second-class and a Brake–Second, have the appearance of being a separate portion of the train bound for a different destination from the main section, of which the First-class Pullman is the first vehicle.

There are many possiblities in this direction, whether you operate Pullman Cars or Corridor Coaches, or both, and correspondence received from Hornby-Dublo owners indicates that train running practice of this kind is followed up, where layouts are suitable. Even if layout restrictions prevent the working of the two sections of the train to two separate stations, the running of a combined express of this nature always adds to the fun of operation. The division of the train at an intermediate station may well involve some fascinating shunting, whether the two sections are really worked forward or not. Similarly, station work of an equally interesting character may be called for when the two sections are joined up on their supposed return journey.

Combined operations of a similar character are readily possible with trains formed of the standard Hornby-Dublo Corridor Coaches. The appearance of these in S.R. green, as No. 4054 First–Second and No. 4055 Brake–Second, has been welcomed by all Hornby-Dublo owners and particularly by those who favour Southern operations in miniature. Many, indeed, have had a West Country locomotive on their layouts waiting for just such a train as can be formed by these bright and attractive vehicles. They make possible the formation of many of the

In the attractive seaside scene in miniature above, Hornby-Dublo S.R. "Barnstaple" is hauling a Pullman express along a coastal stretch of railway.

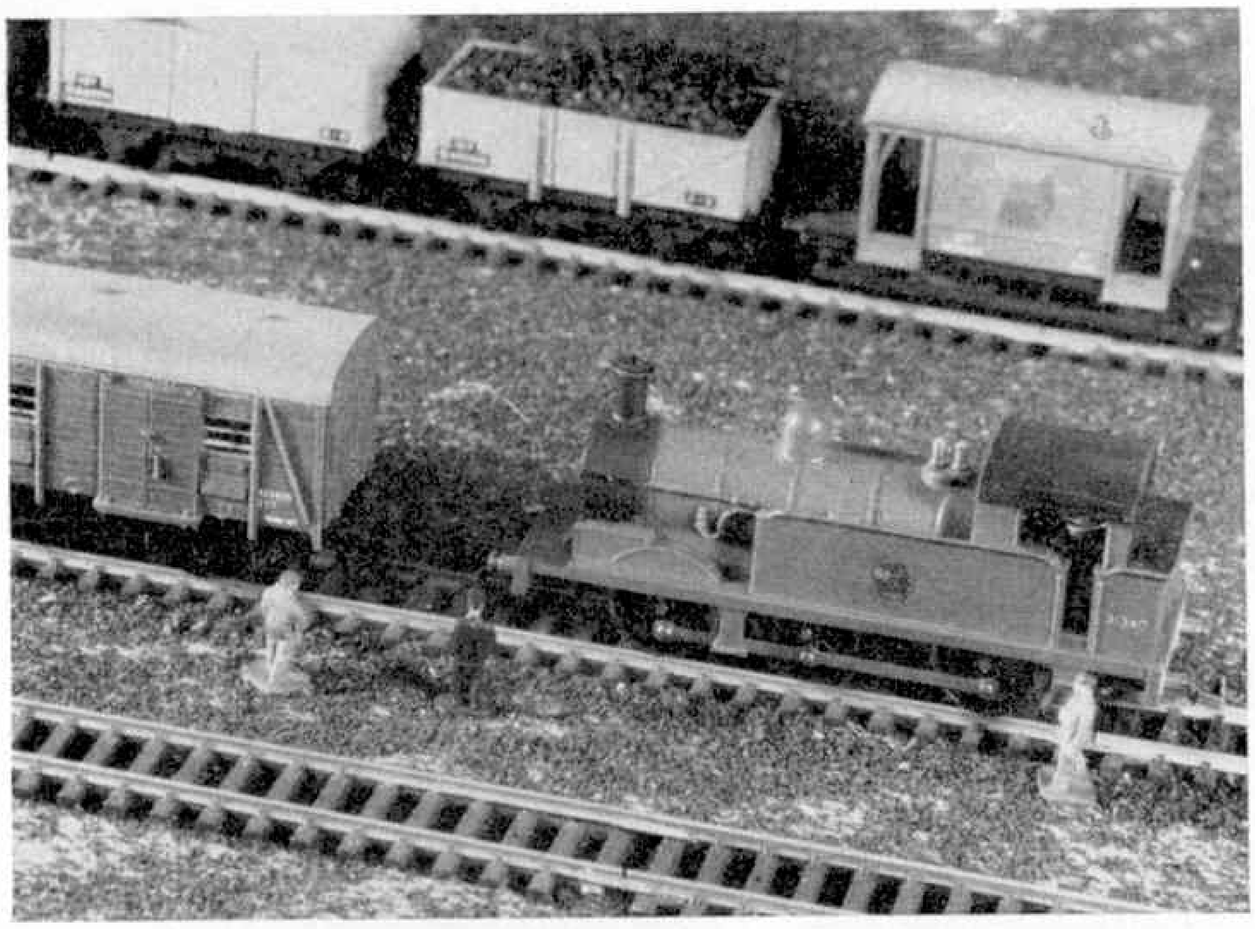
Hornby Railway Company

By the Secretary

standard Southern expresses, and either alone or in conjunction with the Pullmans already referred to they afford numerous opportunities for train working of a particularly interesting character.

A vehicle that is bound to find a place in almost any train made up of S.R. stock is the attractive and realistic No. 4323 Utility Van. It may be identified with one particular section of the train, in which case it may not be required to make the whole journey. Therefore attaching or detaching operations may be necessary. For the supposed conveyance in miniature of holidaymakers' luggage or for the mountains of baggage associated with Ocean Liner specials, or just for plain parcels, the S.R. Utility Van is ideal. In various formations, perhaps with the standard Ventilated Van and the No. 4075 Passenger Brake Van, the Utility Van is a most handy piece of rolling stock.

A route on which West Country locomotives can appear, often with stock in maroon livery, is the Somerset and Dorset line, once one of Britain's better-known "Joint" systems, which runs over the Mendips between Bath and Bournemouth. Conditions on this route, which includes a good deal of single line, agree fairly closely with those found on many miniature systems. Often, lack of space prevents the formation of a complete double track layout, although it may be possible for the owner to incorporate a passing loop at a convenient station. Here is a good opportunity for some interesting train working



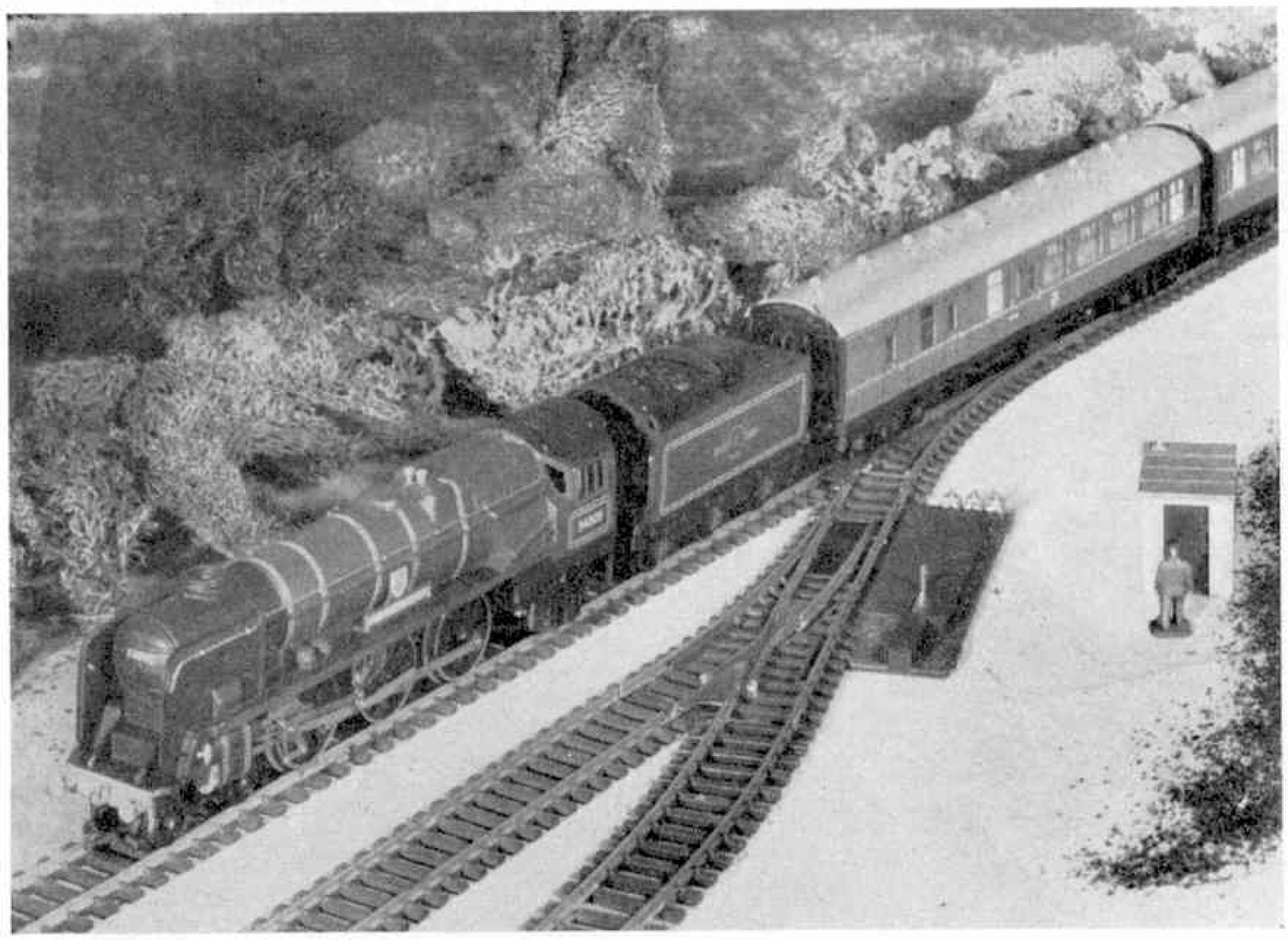
The Hornby-Dublo 0–6–0 Tank ready to "buffer-up" to an S.R. Utility Van, in the course of shunting and marshalling operations.

arrangements and if you are operating traffic in both directions at the same time, one train will have to wait in a loop while the other traverses the single track—a familiar exercise to many of you. When traffic is heavy, your crossing or passing arrangements will have to be carefully organised, so that there is the minimum of delay to your passenger trains.

Apart from regular passenger services, and a considerable amount of holiday traffic during the season, coal accounts for a good deal of activity on the Somerset and Dorset line. This provides us with another scheme for traffic working and good use can be made of the popular 16-ton Mineral Wagon in the formation of such trains. The Hornby-Dublo 2–8–0 Locomotive can be employed quite well on such duties, the L.M.R. class represented having made an appearance on the route concerned. For many years, at busy times, the 2–8–0 locomotives specially intended for Somerset and Dorset duties have taken their turn in working heavy holiday passenger trains, so here is something else that you can follow up occasionally, by way of a change from routine operations.

The recently-introduced No. 4657 "United Dairies" Milk Tank Wagon that I described in some detail last month fits in particularly well with operating schemes of Southern character. Train loads of milk tanks are worked from West Country collecting depots, where they are filled, to bottling and distribution centres in the London area, where they are emptied. Consequently there is a corresponding movement of empty tanks in the down direction in order to begin the process all over again. Here then is a splendid chance to reproduce in miniature an important regular traffic, if you have siding space and accommodation generally for a train of several of these vehicles.

S.R. "Barnstaple", with maroon Corridor Coaches representing a Through train from another Region, passes sidings on a single-line stretch of railway.



Memorial to the Giants of Steam—

(*Continued from page 345*)

Many remember that wonderful run, but few recall a tragic sequel. We know now that this was to be the ultimate in railway speed for many years, but, in 1904, it was no more than a new record to be broken tomorrow or next week, and the struggle for supremacy between the rival companies went on for another two years. It culminated in disaster on June 1, 1906. In the small hours of that fateful Sunday morning, a London and South Western express tore into Salisbury and failed to negotiate the curve through the station. The entire train was wrecked, with a heavy death roll. The subsequent inquiry brought forth suggestions that American tourists were bribing drivers to given them thrills in the form of high speed, but this could not be proved. But it was the end of the rivalry, for a Board of Trade ruling enforced a stop at Salisbury.

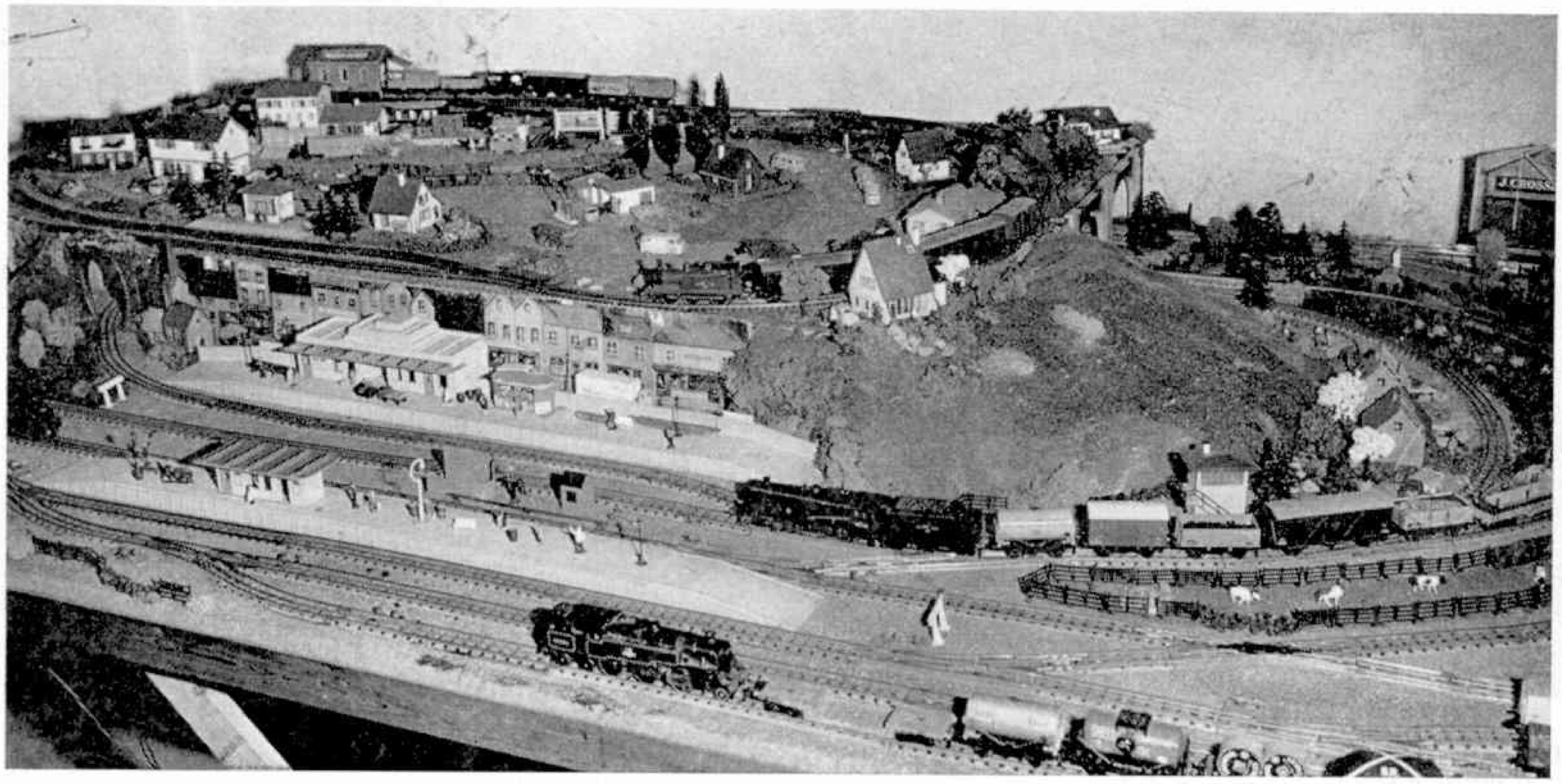
* * * *

Even in retirement, *City of Truro* is unique, for this is the second time she has been pensioned off. Withdrawn in 1931, she languished in York Museum for 26 years. Repatriated from there, she returned to service in the Western Region in 1957.

When an engine reaches the end of active life, the period between its retirement and appearance in the obituary columns of railway records is usually brief. But *City of Truro* is no ordinary locomotive. She stands among the most famous —many will rank her the most famous—in the land. Not for her the silence, the cold neglect, and the corroding rust of the condemned siding with the breaking-up yard, the cutting torch and oblivion at the end. Swindon folk who fashioned her reserved the place of honour in the new museum for this, the greatest of their "Cities".

Together with her fellow survivors, *City of Truro* was transported to the museum by road, and as the engines rolled through the streets on Messrs. Pickford's low-loader, Swindon found the event moving in more sense than one.

But, at least, they have their solid souvenirs of steam. With these keepsakes it will not be too difficult to conjure up the clear call of the distant whistle piercing the darkness, the awe-inspiring crescendo, the arched back of the toiling fireman fleetingly illuminated in the firebox glow and the thunder receding into the night—memories of the magnificence, the surging power and the glory that was the steam locomotive.

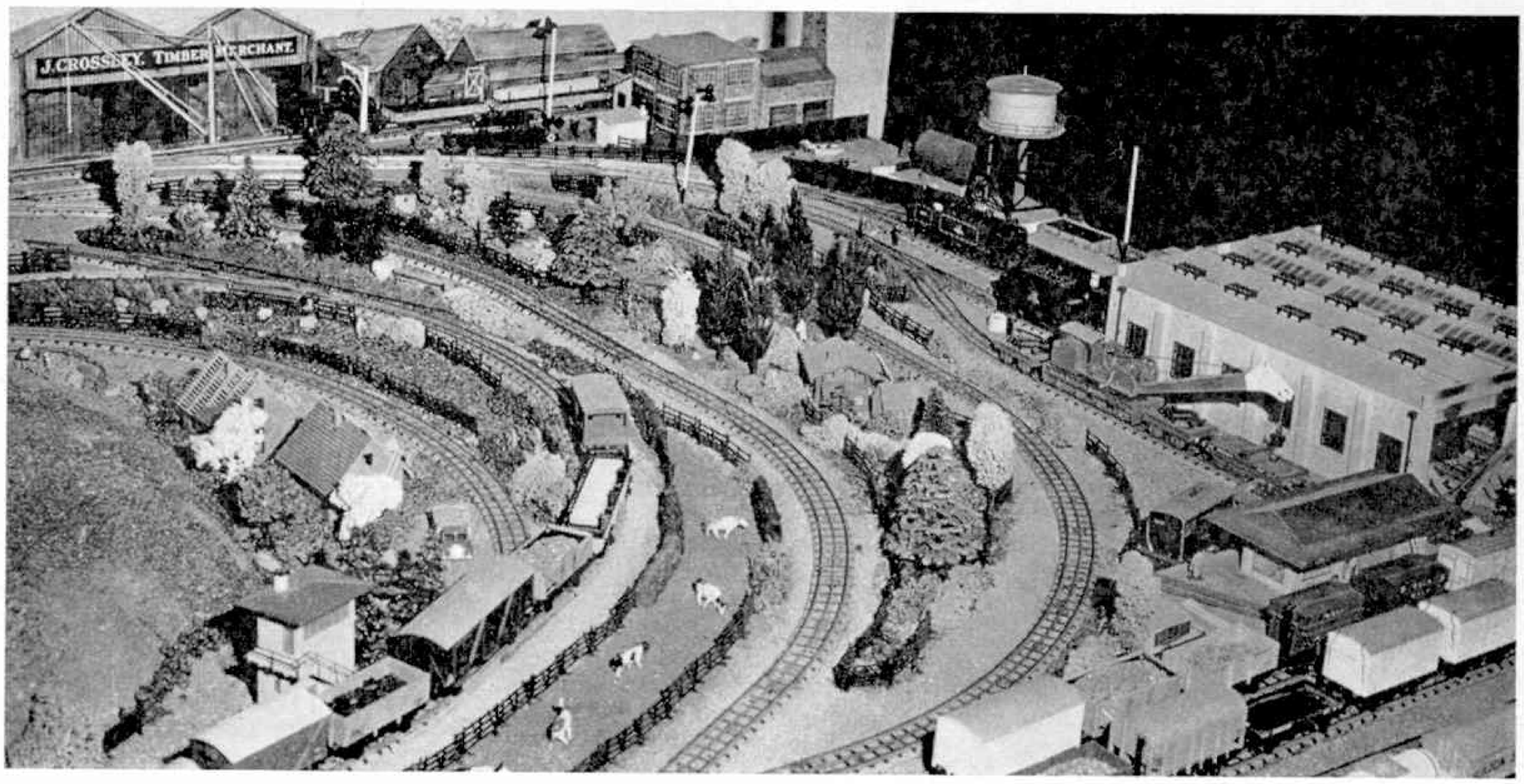


Three-Rail And Two On A Midlands Scheme

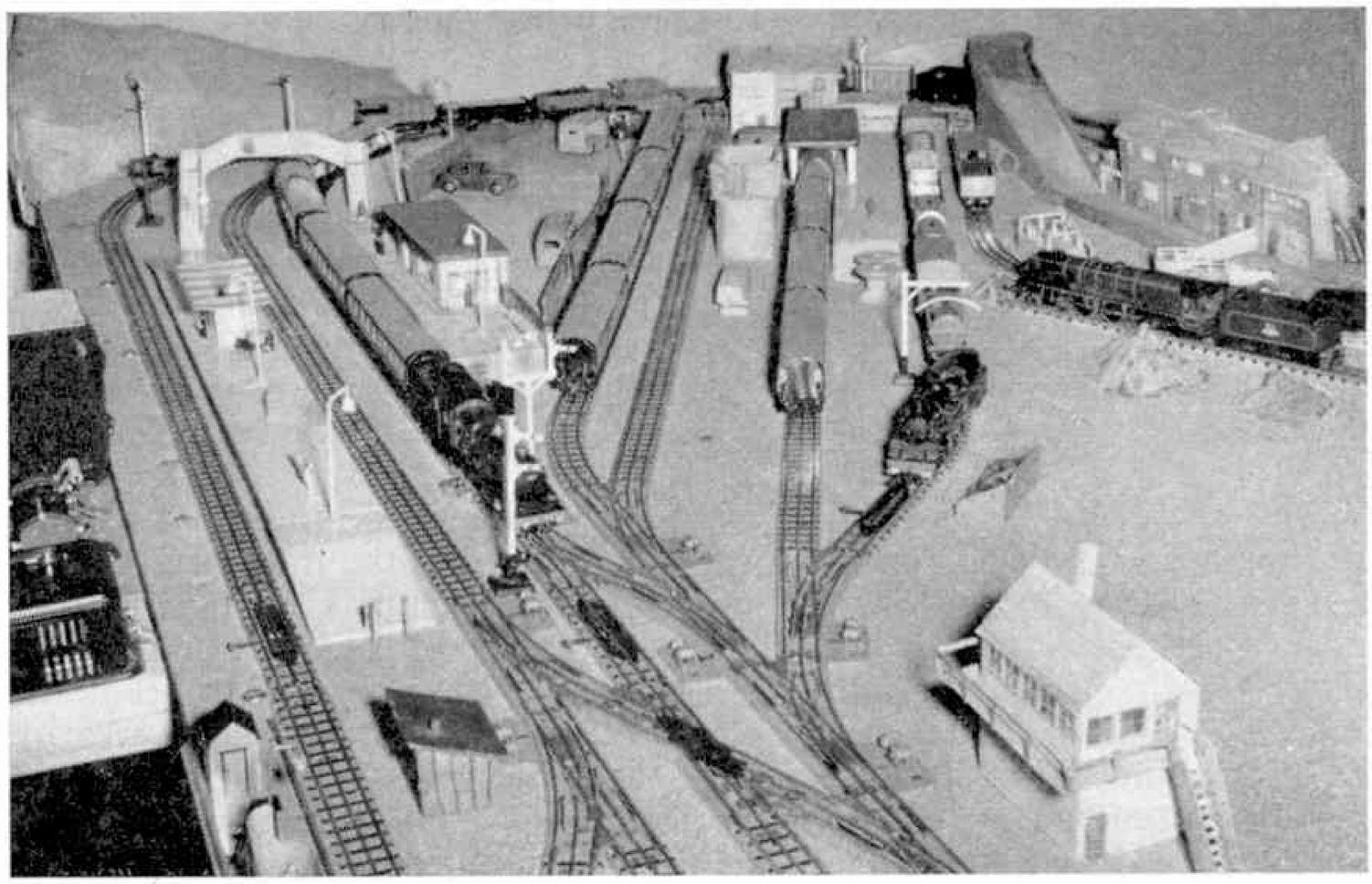
BY LAYOUT MAN

THE two-level Hornby-Dublo layout shown in the two pictures on this page is actually a development of a Three-Rail system to which brief references were made in these notes some time ago. This has been planned and built up by *M.M.* reader E. N. P. Spencer, of Retford, Notts. I find that in an earlier write-up in December, 1960, the layout as it was then was ascribed to his father, Mr. E. D. Spencer, M.A., who in forwarding the photographs and details on which this month's description is based pointed out that the development of the two layouts, the original one and the one shown here, has actually been the work of his son. This keen enthusiast is to be congratulated on the general character of the system and the improvement in its style against the earlier layout.

Top: A view across the layout of E. N. P. Spencer, of Retford, showing the general arrangement of baseboard and high-level tracks. Below: A busy part of the layout, with running tracks in the centre of the picture, and a Goods Depot, Engine Shed and yard at the right-hand end.



Points and a Diamond Crossing make an interesting combination in the foreground of this picture showing part of the layout of John Mason, of Ruislip.



As the photograph suggests, the present railway is fairly extensive, covering in all an area ten feet by five. Not only is this space devoted to a well-laid-out Three-Rail system at baseboard level, but there is in addition an upper-level railway occupying a space 5 feet 8 inches by 3 feet 3 inches arranged above part of the base-level system.

Although the layout board as a whole is extensive enough there is, in fact, no connection between the upper and lower levels, as the track on the high-level system, which forms the most recently developed part of the line, incorporates Hornby-Dublo Two-Rail equipment. This adds to variety in operation, although through running between the two sections is not practicable.

At base level there are two main line circuits, one consisting of double track while the other is single track only. These bore beneath the high-level section of the railway by means of tunnels, which have appropriately effective entrances. The double track and the single track main lines pass through the station with three platform faces, two provided by a Hornby-Dublo Island Platform and the other by a corresponding Suburban Station. The platforms have been lengthened by means of the standard extensions, so that it is possible to accommodate a train of reasonable length alongside each platform face.

At one end of the layout board, outside the main oval, there has been installed a four-road engine shed, assembled from the standard Engine Shed Kit and its Extension Kit. There is a goods yard, too, with provision for shunting, and the handling of freight trains is greatly assisted by the presence of two long sidings, which provide ample storage space. These run practically the whole length of that side of the board facing the operator. Because of their length, these sidings have their uses in general operations, too. Made-up trains can wait there, complete with engines, until it is their turn to be brought on to the main line for service.

As it covers a smaller area, the high-level section is more simple in character. A single-line circuit, with siding, provides the actual railway, while the fullest advantage has been taken of the space inside the main oval to provide miniature buildings of various kinds, and attractive lineside and scenic effects. The upper-level Two-Rail track is well in evidence above the tunnel mouth previously referred to, but at the opposite end of the upper section gradually-sloping "ground" separates the high level from the low.

The scenic and lineside work generally is of a remarkably realistic character. Buildings, with an old-world air about them, line the town street to the rear of the main station. The street itself, gradually becomes a more countrified road, alongside which sites are being developed for building purposes. Below the slopes that lead up to the Two-Rail territory there are, in fact, some bungalows modelled as if in course of erection.

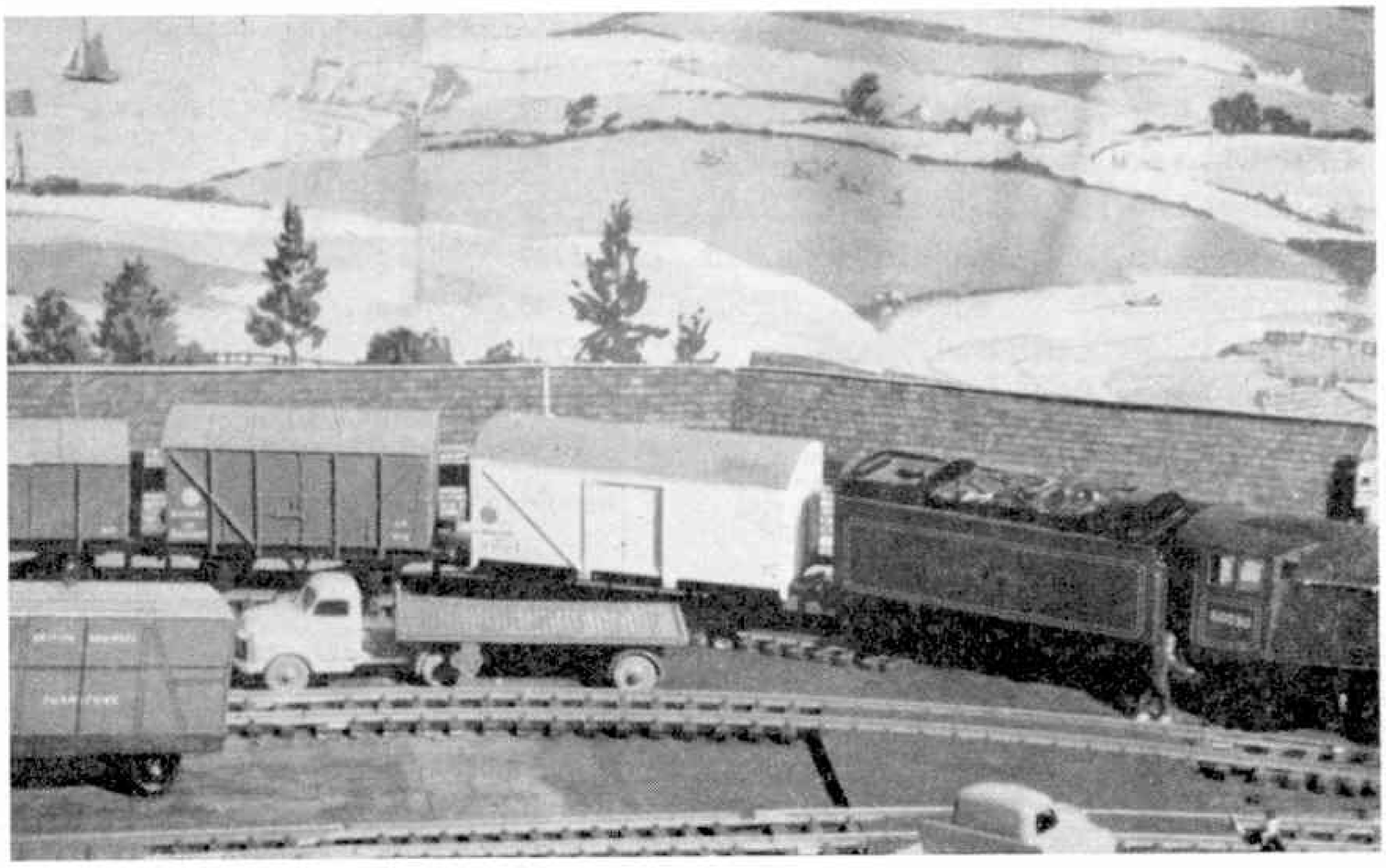
Hillside slopes and contours generally have been built up by the use of hardboard "ribs" cut to the required profile, well padded with paper in between and covered with a stiff cotton tulle. After coating this with adhesive, coloured flock, as frequently used for scenic modelling, has been spread over the surface. Miniature trees also have been "grown" with success by binding various amounts of lichen to small twigs of suitable shape. Apart from the home-constructed scenic details, good use has been made of the various items produced commercially, either in kit form, or as "cut-outs" and so on. The final result, if anything on any miniature railway can be regarded as final, is really pleasing.

As might be expected, there is a wide range of Three-Rail locomotives and rolling stock, for there is plenty of room where these can run. Complete trains of Pullman Cars make a fine sight behind a *Mallard* Pacific, while a Class 8 2–8–0 ably handles the main line freight traffic. Diesel power is represented too, the locomotives including a Co–Co Diesel.

On the Two-Rail section there is a Co–Co-hauled passenger train for main line runs, suburban and freight trains being handled by one of the well-known Hornby-Dublo 0–6–0 Tanks. The general character of the high-level section of the layout is more rural in style than that of the layout below, but this is really in keeping with its "upland" situation.

A realistic scene on the Two-Rail layout of S. F. Page, of St. Albans. The express goods train shown includes a "Blue Spot" Fish Van and a Banana Van.

(*Two-Rail article on next page*)



FOR THE TWO-RAIL ENTHUSIAST

ANOTHER DOUBLE TRACK LAYOUT

LAST month, we dealt with the first double track layout scheme in this series. Now here is another double track layout, specially designed to give the maximum operation in the minimum of space. The formation shown this month will fit on a baseboard measuring six feet three inches by four feet six inches. This space will also accommodate the two power control units required and any Switches which may be used for Electrically-Operated accessories.

By "LINESMAN"

The system consists essentially of a double track oval, on which two trains can run at the same time, each being under independent control. Three sidings are included, for the storage of rolling stock and to allow shunting operations to be carried out. The two main tracks are connected by Left Hand Points which form a crossover, thus allowing a train to be passed from one track to the other. When this operation takes place, the receiving track must be clear of another train, and the control knob or handle preset to allow the movement to take place without the train coming to a standstill on the Crossover Points.

The rule of the operation should allow for the clockwise travel on the outer track and anti-clockwise on the inner track, so that a locomotive on the latter can back its train into a siding for shunting purposes. This avoids the engine being trapped at a Buffer Stop, and is a rule which should always be followed whenever possible on any layout. An isolating section has been provided so that a train can be held on the main line while a shunting movement by another engine takes place in the sidings.

The Electrically-Operated accessory for which the wiring is shown this month is the Royal Mail Van Set with its push-button switch. It will be noted that this item is situated in the middle of a straight section of track, so that no operating difficulties can arise such as the train striking the apparatus through it being approached direct from a curve.

* * * *

The lineside apparatus is assembled by pulling back the spring contact lever pin which projects through the moulded base, and hooking the two projections at each end of the base under the sleepers on the track; the moulded fork pieces at these points will accurately locate the two items. The lever pin is then released, allowing the end of a contact blade to butt against the side of the running rail on the track. To ensure efficient working, the apparatus should be fastened to the baseboard with two No. 4 woodscrews, using the holes provided in the base.

The Points shown for this layout are Hand Operated, as also are the Uncoupling Rails, but these may be Electrically Operated if the owner so desires. A power control unit with two completely separate outputs must be used for one of the tracks, in order to supply an isolated output for operation of the Royal Mail Van Set.

ITEMS REQUIRED

11	Curved Rails	2710
11	Curved Rails, Large Radius	2719
2	Curved Terminal Rails, with Suppressor	2714
1	Curved Terminal Rail, with Suppressor, Large Radius	2721
3	Curved Quarter Rails	2712
21	Straight Rails	2701
4	Straight One-Third Rails	2703
4	Straight Two-Third Rails	2702
1	Straight Two-Third Single Isolating Rail	2738
3	Straight Two-Third Double Isolating Rails	2739
3	Uncoupling Rails	2745
2	Switch Points, Left Hand	2729
3	Switch Points, Right Hand	2728
3	Buffer Stops	2450
2	Power Control Units	
1	Royal Mail Van Set and Switch	

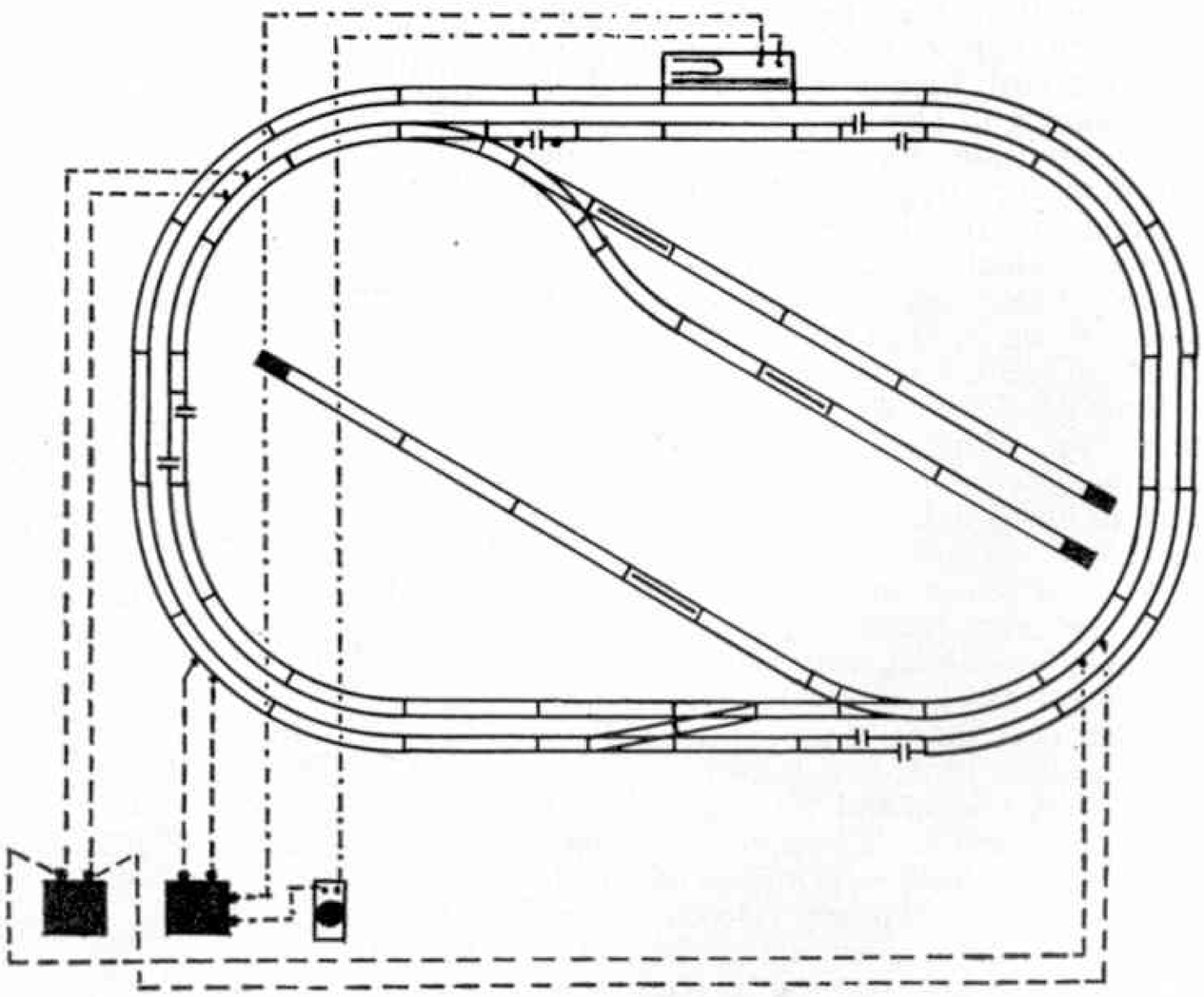
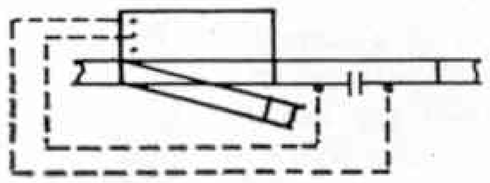
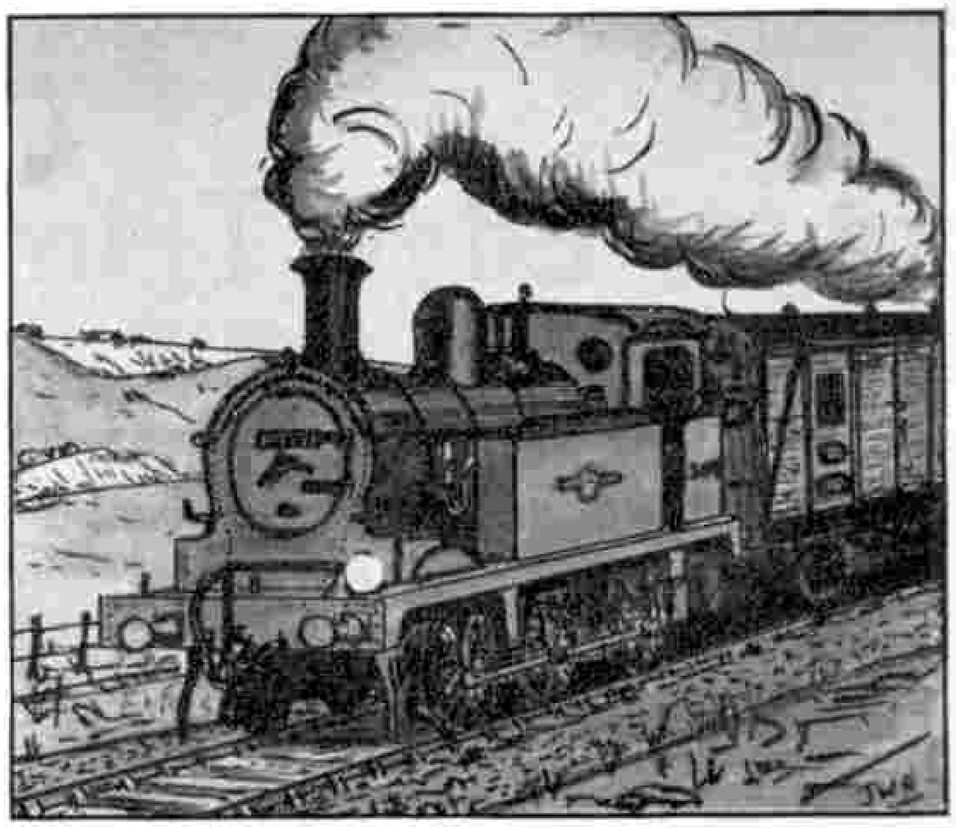


Diagram shows disposition and wiring of the layout described by "Linesman" this month.



WIRING OF SINGLE ISOLATING RAIL

HORNBY REPAIR SERVICE



INTRODUCED at the beginning of this year to expedite repairs to Hornby-Dublo Locomotives and Tenders, Hornby Gauge 0 Clockwork Trains and Clockwork and Electric Meccano Motors the Repair Service operated by Meccano Limited is being constantly extended. The Dealers authorised to offer this service are listed below. Firms taking part in the scheme display a distinctive Accredited Service Specialist sign.

Repairs may, of course, still be sent to the Service Department of Meccano Limited at Hanson Road, Aintree, Liverpool 9.

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Dundee—Brian Sherriff, 93 Victoria Road.

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Reading Model Supplies, 1 Hosier Street, St. Mary's Butts.

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Birkenhead—Birkenhead Model Supplies Ltd., 32 Grange Road West.
Moreton—Mortimer Ltd., 254–260 Hoylake Road.
Neston—J. Bailey, The Model Shop, Parkgate Road.
New Brighton—G. Longworth, 78–80 Rowson Street.

CORNWALL
Helston—Eddy & Son (Helston) Ltd., 21 Meneage Street.

DENBIGHSHIRE
Wrexham—Craftoys Ltd., 4 Centenary Buildings, King Street.

DEVONSHIRE
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Carlisle—R. M. Hill & Sons, 36–40 Castle Street.

DURHAM
Durham—C. T. Applegarth, The Model Shop, 92 Claypath.
Stockton-on-Tees—K. Dean, 41 Bishopton Lane.

ESSEX
Chelmsford—Chelmsford Model Co., Baddow Road.
Colchester—West End Cycle Stores, 65 Crouch Street.
Ilford—Pages of Barkingside Ltd., 19 Broadway Market, Fencepiece Road, Barkingside.
Southend-on-Sea—Alco Supplies, 133 Hamstel Road, Southchurch.

GLAMORGAN
Cardiff—James Lendon, 194 Fidias Road, Llanishen, The Model Shop, 9 Mill Lane.
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Bristol—The White Tree Electrical and Toy Bazaar, 28 North View, Westbury Park.
Cheltenham—I. Newman (Cheltenham) Ltd., 127–9 Bath Road.
Cirencester—S. E. Trinder, The Model Hangar, 71 Cricklade Street.
Gloucester—O. & N. Ash, 106 Westgate Street.

HAMPSHIRE
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The Sports Shop, 14 Seymoor Road, Westbourne.
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St. Albans—Bold and Burrows Ltd., 12–18 Verulam Road.
Welwyn Garden City—H. A. Blunt & Sons Ltd., 38 Fretherne Road.

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Beckenham—Furley & Baker, 69 High Street.
Bexleyheath—W. J. & H. G. Jennings Ltd., Department Store, Broadway.
Canterbury—Barretts of Canterbury Ltd., 2 St. George's Street.
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Clyde Model Dockyard Ltd., 22–3 Argyle Arcade.
Glassfords, 89 Cambridge Street, C.3.

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Rushworth, The Model Railway Shop, 137a Kensington.
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OXFORDSHIRE
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PERTHSHIRE
Perth—Bob Croll, 75 High Street.

SHROPSHIRE
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Bath—Pram and Toy Shop Ltd., 22–23 Southgate Street.
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Taunton—Westlakes (Cycles) Ltd., Station Road.
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Wolverhampton—A. J. Chamberlain, 39 Darlington Street.

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Hornton's (Models & Toys) Ltd., 32 Stephenson Street, 2.
The Perrys, 769 Alum Rock Road, Ward End.
J. Williams, 51 Comberton Road, Sheldon.
Sutton Coldfield—W. Gill & Son, The Parade.

YORKSHIRE
Bradford—Bradford Model Railway Centre Ltd., 202 Keighley Road, Frizinghall.
W. Carter, 15 Bridge Street.
Leeds—King Charles Sports Centre, 18 and 20 King Charles Street.
Sheffield—Fred Shaw, 42 Church Street.
The Redgate Co. (Sheffield) Ltd., Moorhead.

CHANNEL ISLES
Jersey—George D. Laurens, 3/5/7 Queen Street.

EIRE
Dublin—Southern Model Railway Co., Lower Leeson Street.

NORTHERN IRELAND
Belfast—The Model Shop, 36 Wellington Place.
Thornton & Co. Ltd., 40/42 Donegal Place.

Lawn Edge Trimmer: Gravel Grading Machine

Fig. 1. An attractive and simple model of a Lawn Edge Trimming Machine.

THERE are two models for you to tackle this month, the first of which is a "natty" little replica of a machine designed for trimming the edges of lawns.

It consists of a chasis made from two 2½" Strips bolted to the lugs of three 1½" × ½" Double Angle Strips arranged as shown. To the front Double Angle Strips a 1½" Flat Girder is bolted and two Road Wheels are mounted on a 3" Rod mounted in the 2½" Strips. This Rod carries a Collar and a Pinion 1, which meshes with a ¾" Contrate mounted on a 2" Rod journalled in the front two Double Angle Strips. On the front end of this Rod a Collar is fixed and to the boss of this an Angle Bracket 2 is bolted. To the other lug of the Bracket is lock-nutted a 2½" Strip 3, slightly bent as shown. The other end of this Strip is similarly lock-nutted to an Angle Bracket fixed to one end of a 3½" Strip 4. A 3" Strip 5 is now bolted to the Flat Girder of the chassis and the free end of this is bolted to an Angle Bracket 6 fixed, together with a 2" Strip 7, to the centre hole of 3½" Strip 4. The handle is fixed to the model by a Rod Socket as shown.

As the machine is pushed along the Pinion drives the Contrate and thus rotates the crank formed by the Angle Bracket 2. This results in the 2½" Strip 3 oscillating to and fro and opening and closing the cutting blades formed by the Strip 4 and the 2" Strip 7.

Parts required to build the Lawn Trimmer: 1 of No. 3; 1 of No. 4; 3 of No. 5; 1 of No. 6; 3 of No. 12; 2 of No. 14; 1 of No. 16b; 1 of No. 17; 1 of No. 26; 1 of No. 29; 19 of No. 37a; 14 of No. 37b; 3 of No. 38; 3 of No. 48; 3 of No. 59; 1 of No. 63; 1 of No. 179; 2 of No. 187.

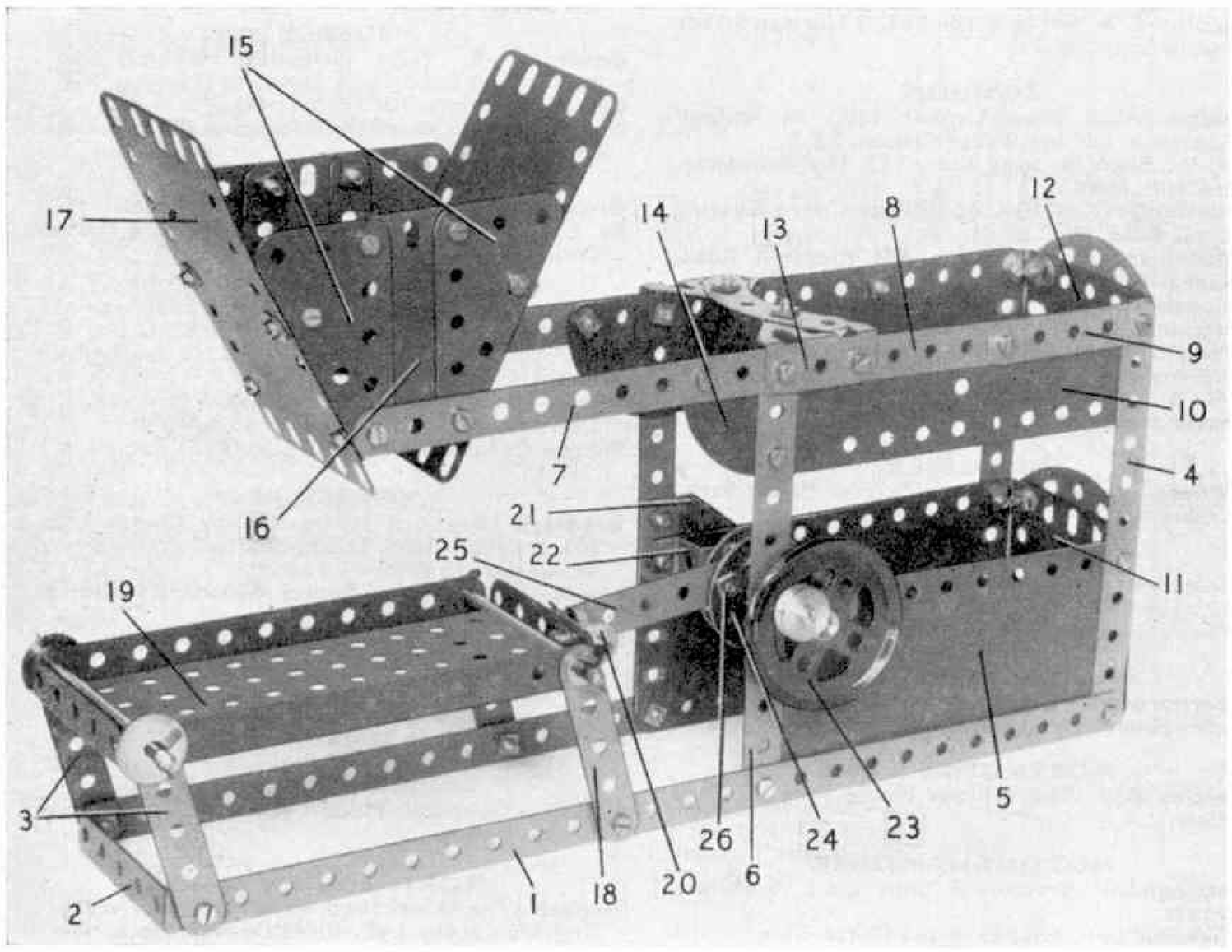


Fig. 2. A model of a Gravel Grading Machine.

FOR SIFTING AND GRADING

Our second simple model shown in Fig. 1, represents a machine used for sifting and grading gravel or similar material. The material to be sifted is loaded into a hopper, from which it can be fed gradually on to a vibrating or oscillating tray pierced with holes of the required size. The oscillating movement shakes the material and the smaller pieces pass through the holes into a tray below, while the bigger pieces remain on the sifter for separate removal.

How to build the Model

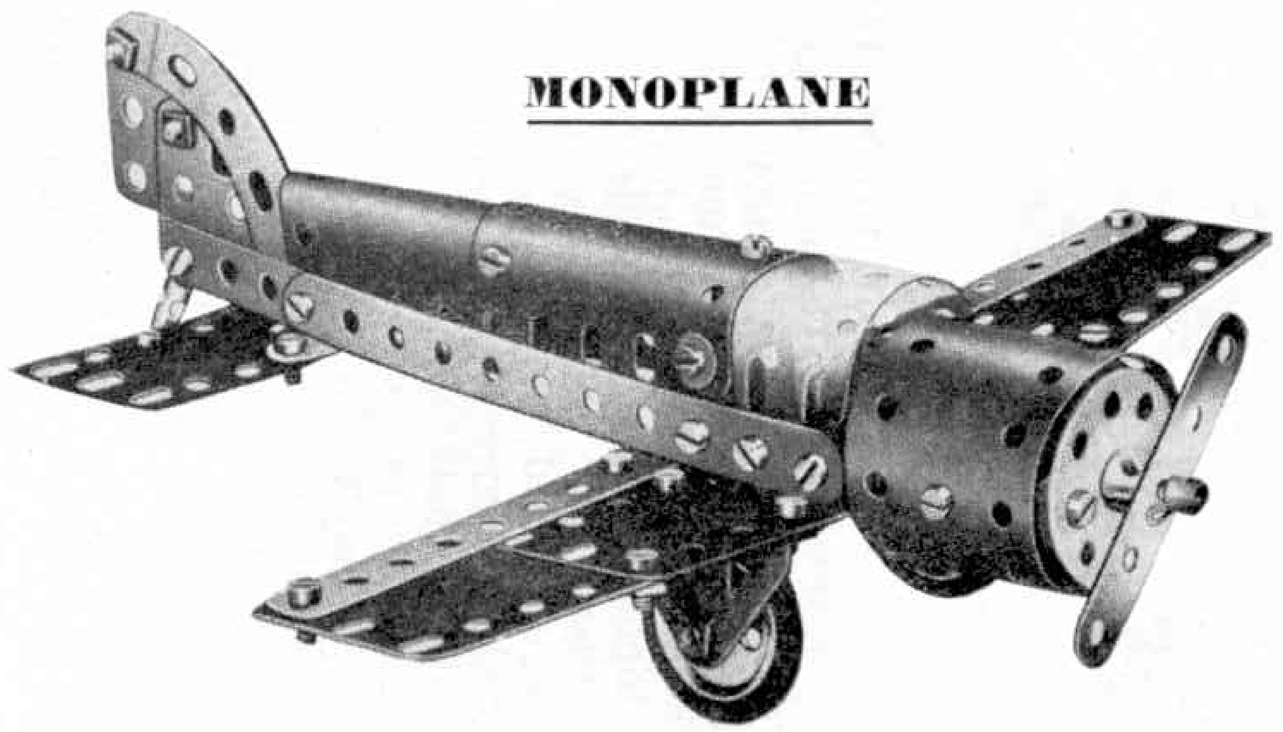
Two 12½" Strips 1 are joined by a 2½" × ½" Double Angle Strip 2, at the same time lock-nutting in place two 2½" Strips 3; ⅜" Bolts are used. The opposite ends of the Strips 1 are also joined by a 2½" × ½" Double Angle Strip, at the same time fixing in two 5½" Strips 4, and two 5½" × 2½" Flexible Plates 5. Two more 5½" Strips 6 are fixed to the 12½" Strips 1. To the upper ends of the Strips 4 and 6 is bolted a compound strip consisting of a 5½" Strip 7, a 3½" Strip 8 and a 2½" Strip 9 also. A 5½" × 1½" Flexible Plate 10 also is bolted in place as shown. The rear end of the structure is joined by a 2½" × 2½" Flexible Plate 11 and a 2½" × 1½" Flexible Plate 12. These are fixed in place by Angle Brackets and are edged by Stepped Curved Strips. The sides are also joined by a further Stepped Curved Strip bolted to two

(*Continued on page 374*)

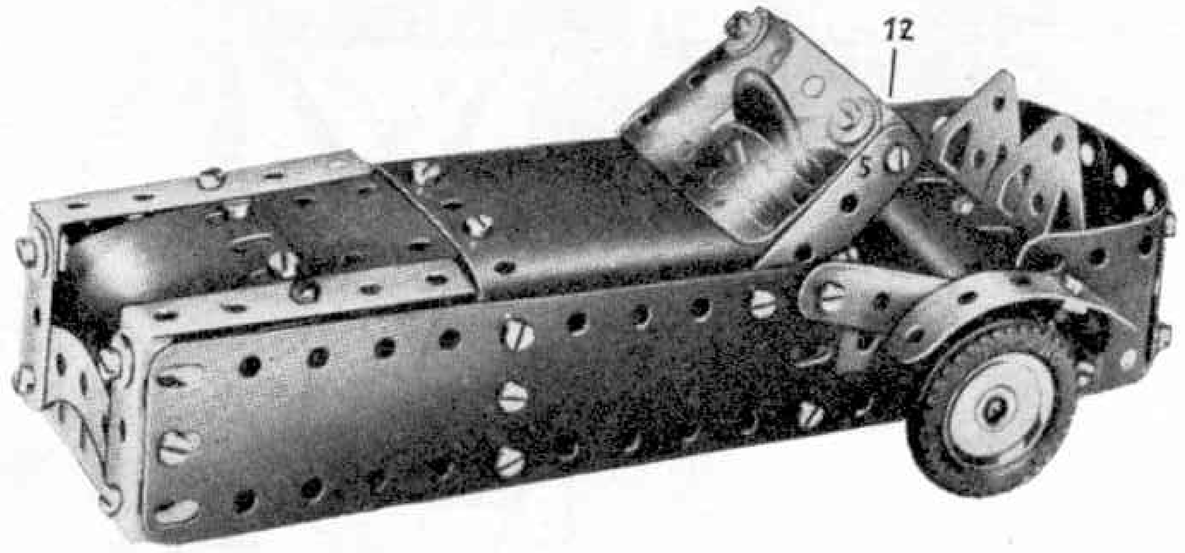
FROM THE NEW-STYLE BOOKS—TWO MECCANO MODELS FOR JUNIORS

BOTH FROM OUTFIT No. 2

MONOPLANE



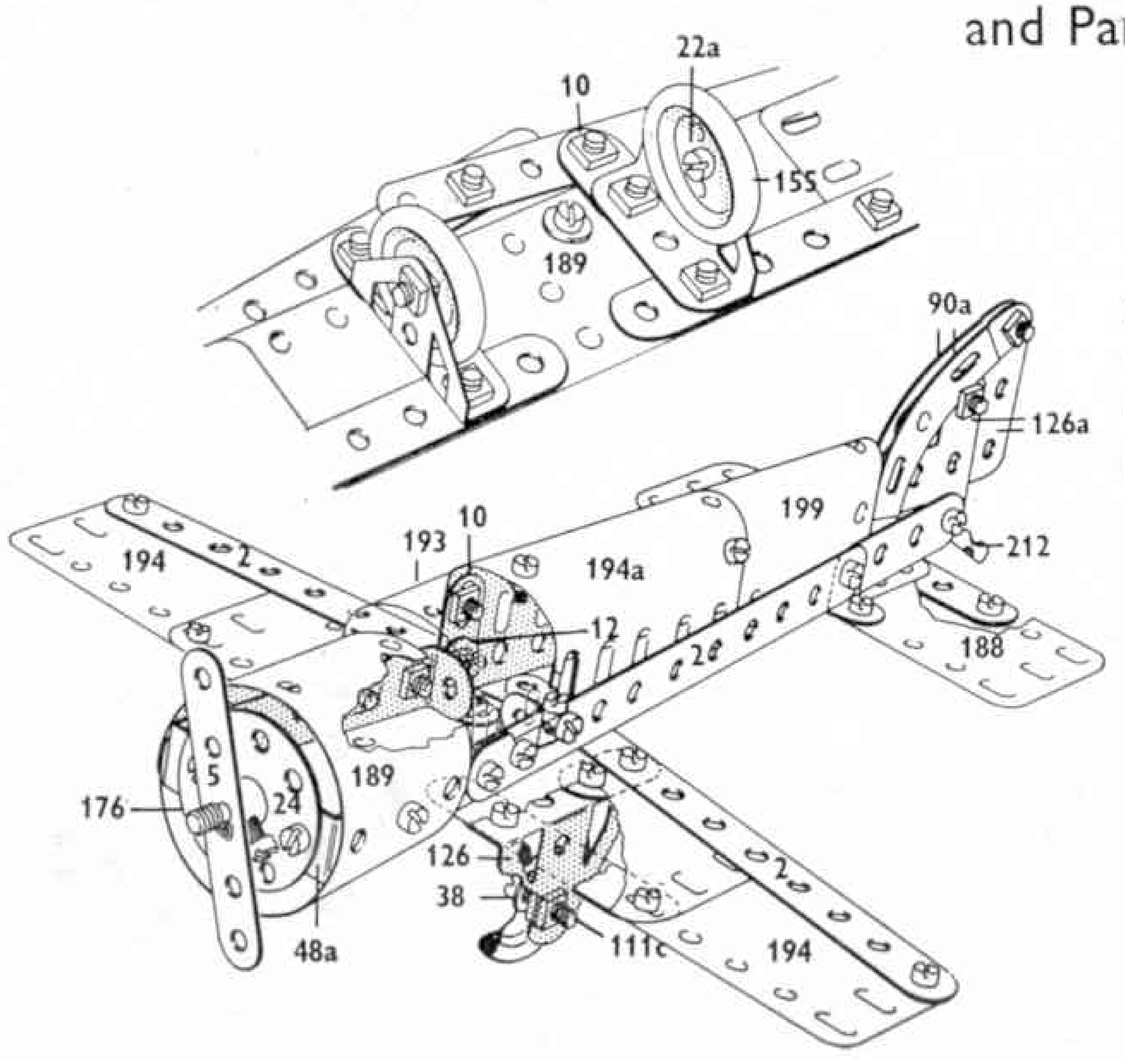
3-WHEEL SPORTS CAR

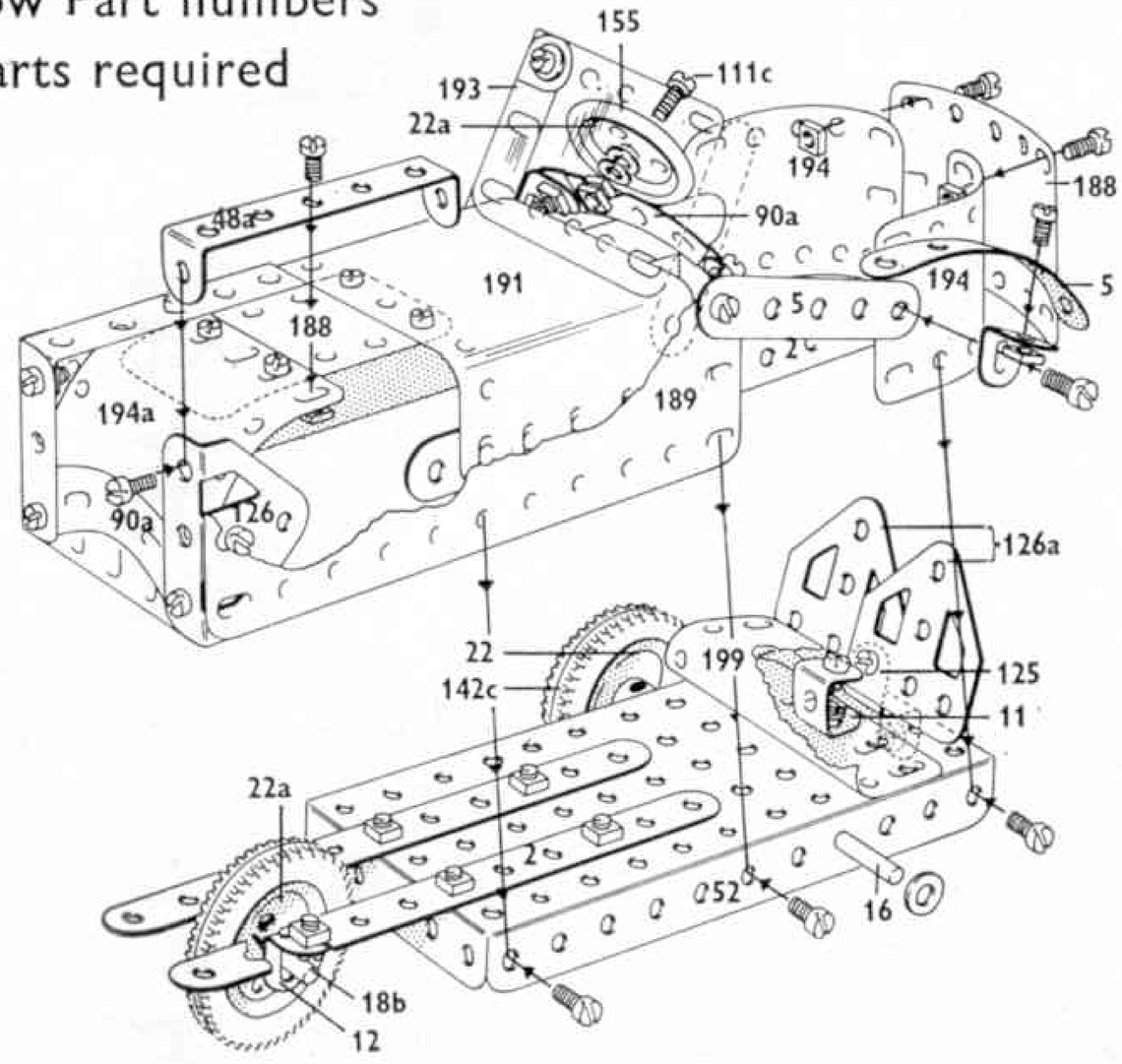


Panels show Part numbers and Parts required

2.1

4	–	2
6	–	5
4	–	10
4	–	12
1	–	18b
2	–	22a
1	–	24
41	–	37a
37	–	37b
6	–	38
2	–	48a
2	–	111c
2	–	126
2	–	126a
2	–	155
1	–	176
2	–	188
2	–	189
1	–	193
2	–	194
1	–	194a
1	–	199
1	–	212





2.2

4	–	2
6	–	5
1	–	11
8	–	12
1	–	16
1	–	18b
2	–	22
2	–	22a
2	–	35
50	–	37a
48	–	37b
10	–	38
2	–	48a
1	–	52
2	–	90a
1	–	111c
1	–	125
2	–	126
2	–	126a
3	–	142c
1	–	155
2	–	188
2	–	189
1	–	191
1	–	193
2	–	194
1	–	194a
1	–	199

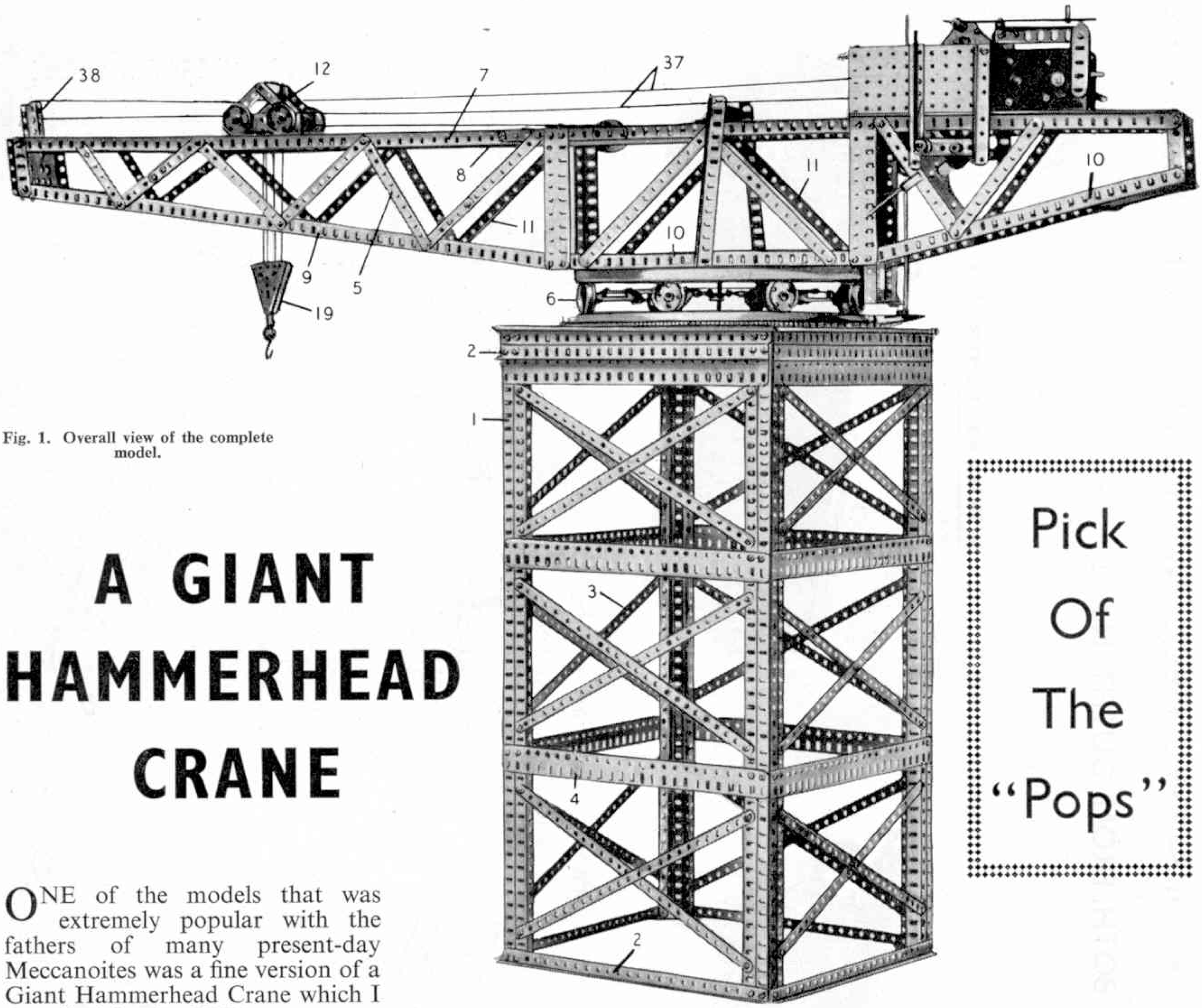


Fig. 1. Overall view of the complete model.

A GIANT HAMMERHEAD CRANE

By "SPANNER"

ONE of the models that was extremely popular with the fathers of many present-day Meccanoites was a fine version of a Giant Hammerhead Crane which I described in the *M.M.* some years before the last war. This model held great appeal for model-builders of that time, probably on account of its realism, sturdy construction and the fact that it was capable of lifting quite considerable loads. I have, therefore, selected this model, as the illustrations of it were fortunately still available to me, for the subject of this latest "Pick of the Pops" article.

I must mention, however, that most of these old models contained some parts—and in some cases Motors too—of a type now obsolete. Over the years these have been replaced by new and improved parts and Motors. There have, in fact, been many developments in the Meccano system since these models made their appearance, and although they can still be built from the 1962 Meccano, some small modifications will be necessary in details of the design. For example, the Hammerhead Crane shown here was driven by a type of Motor that has been obsolete for many years, but there will be no difficulty in adapting the construction so as to use a modern E15R Electric Motor.

Pick Of The "Pops"

BUILDING THE MODEL

The main tower is of very massive construction and will withstand tremendous strain. Each corner member 1 is composed of three $24\frac{1}{2}$" Angle Girders, connected at top and bottom by $12\frac{1}{2}$" Girders 2. The framework is made perfectly rigid by means of a series of ties and struts consisting of $12\frac{1}{2}$" Strips 3 and Flat Girders 4. The upper platform is composed of a number of Flat Plates bolted to the projecting flanges of the top Angle Girders 2 and to further $12\frac{1}{2}$" Girders secured transversely in the tower.

The rotating boom of the crane swivels upon roller bearings 6 mounted on the upper platform.

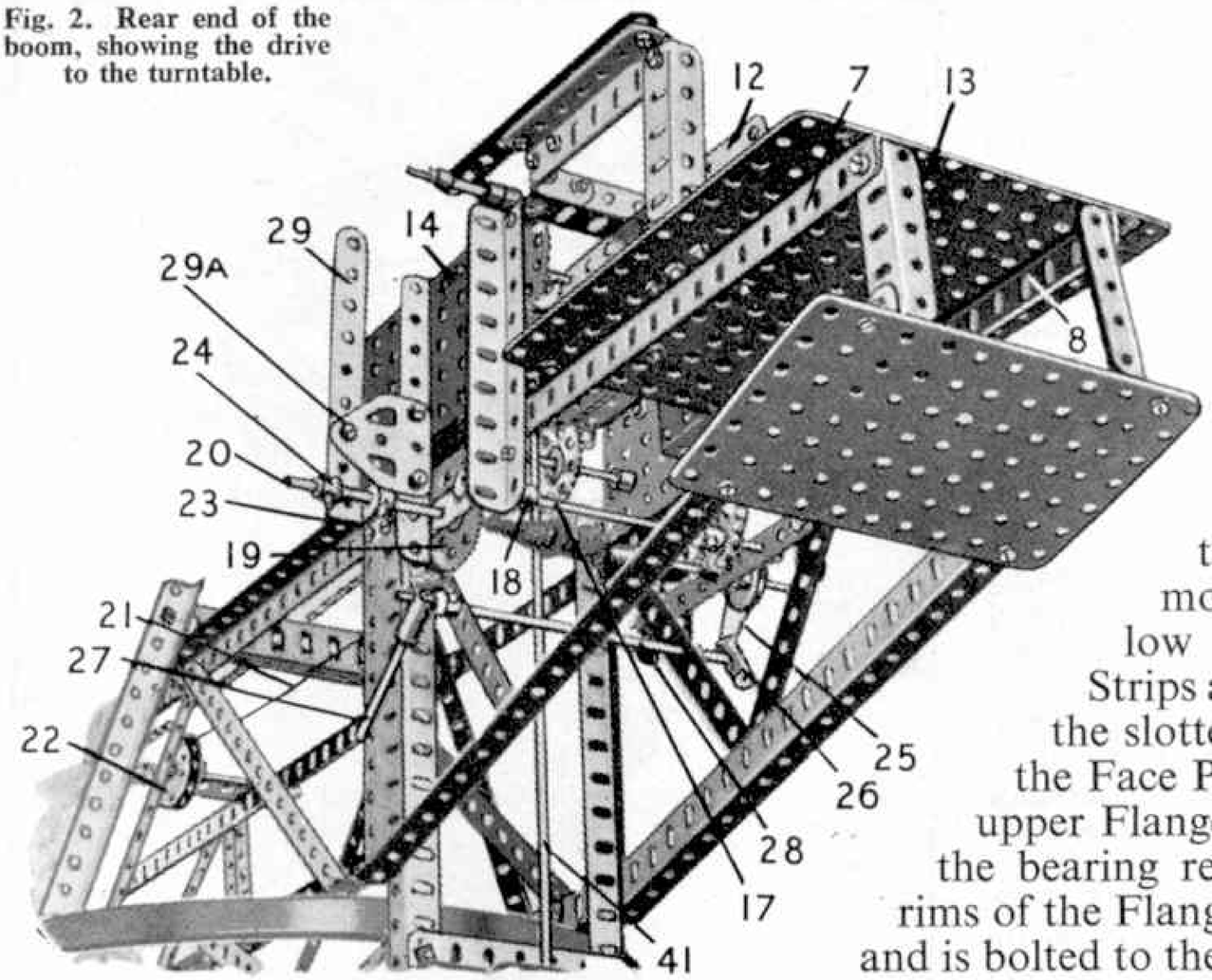


Fig. 2. Rear end of the boom, showing the drive to the turntable.

The construction of the main pivot and roller bearing 6 in the original model made use of the old Channel Segments (Part No. 119) which are now obsolete, and their function in this model can be replaced with advantage by making use of two Flanged Rings (Part No. 167b). One of these is bolted to the platform. A $9\frac{1}{2}''$ Strip is then bolted across the Flanged Ring and has a Double Arm Crank secured to it.

The Crank carries a Rod that is held in place by two Collars, and passes up through the boss of a Face Plate fixed at the centre of the spider that carries the roller wheels. Eight $3\frac{1}{2}''$ Strips are bolted radially about the Face Plate and their outer ends are connected by further $3\frac{1}{2}''$ Strips. The radial $3\frac{1}{2}''$ Strips are each fitted with a $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip and in each of these a $2\frac{1}{2}''$ Rod is mounted. The Rods are held in place in the Double Angle Strips by a Collar on their inner ends and a $1\frac{1}{8}''$ Flanged Wheel on their outer ends.

The Flanged Wheels are spaced from the Double Angle Strips by Washers, eight Washers being used on each of four of the Rods and five being used on each of the other four. The eight Washers are fitted to the Rods that are mounted below the $3\frac{1}{2}''$ Strips attached to the slotted holes of the Face Plates. The upper Flanged Ring of the bearing rests on the rims of the Flanged Wheels and is bolted to the underside of the boom. A $9\frac{1}{2}''$ Angle Girder can be bolted across the centre of the Ring and fitted at its centre with a Double Arm Crank that passes over the pivot Rod fixed in the centre of the lower Flanged Ring.

Each side 7, 8, of the boom is composed of two $24\frac{1}{2}''$ Angle Girders butted together and secured by a $5\frac{1}{2}''$ Girder at the centre. The lower portions of the frame consist of $24\frac{1}{2}''$ Girders 9 and $12\frac{1}{2}''$ Girders 10, braced by a series of ties and struts 5 and 11.

WORKING MOVEMENTS

The three working movements of the model—hoisting, racking and slewing—are driven and controlled from the Electric Motor and gear-box secured upon the upper side of the boom. The motor (12 Fig. 3) shown in the illustration is an obsolete type, and the current E15R Motor can be used in its place. It is bolted to large Flat Plates 13 carried on the main girders 7, 8, while the sides of the gear-box 14 are bolted directly to the girders 7 and 8. A general view of the driving mechanism and controls is shown in Fig 3.

The hoisting gear is operated as follows: the Motor, by means of a $\frac{1}{2}''$ Pinion 15 (Fig. 3) on its armature, drives a 57-teeth Gear Wheel secured to an axle carrying the 1″ Sprocket Wheel 16. This Sprocket Wheel is connected by a short Sprocket Chain to a similar wheel mounted on a Rod 17 (Fig. 2), and a Pinion 18 secured to the latter drives a 57-teeth Gear Wheel 19 on the winding shaft 20. The hoisting cord 21 passes from this shaft over a guide pulley 22, and over one of two pulleys 1a in the traveller (Fig. 4); from thence it is led round one of the sheaves of the two-sheaved pulley block 5, back round the other pulley 1a, and over the second sheave in the pulley block 5, and is finally secured to a hole in one of the Bush Wheels 1. The Bush Wheels 1 do not revolve with the sheaves 1a.

The Gear Wheel 19 may be moved in or out of engagement with the Pinion 18 on operation of a lever 29; the latter is pivoted at 29a and engages the Rod 20 by means of a Double Bracket 23 mounted between Collars 24. The movement of the load is controlled by a friction brake consisting of a piece of cord 25 tied to the end of a Coupling 26 and engaging a 1″ Pulley secured to the winding shaft. The grip of the cord 25 about the Pulley is relaxed on lifting the lever 27, which consists of a short Rod attached to the shaft 28 carrying the coupling 26.

ROTATING AND TRAVERSING

The 57-teeth Gear Wheel (already mentioned) mounted immediately behind the Sprocket Wheel 16 on the shaft 42 (Fig. 3), is driven by the Motor Pinion 15

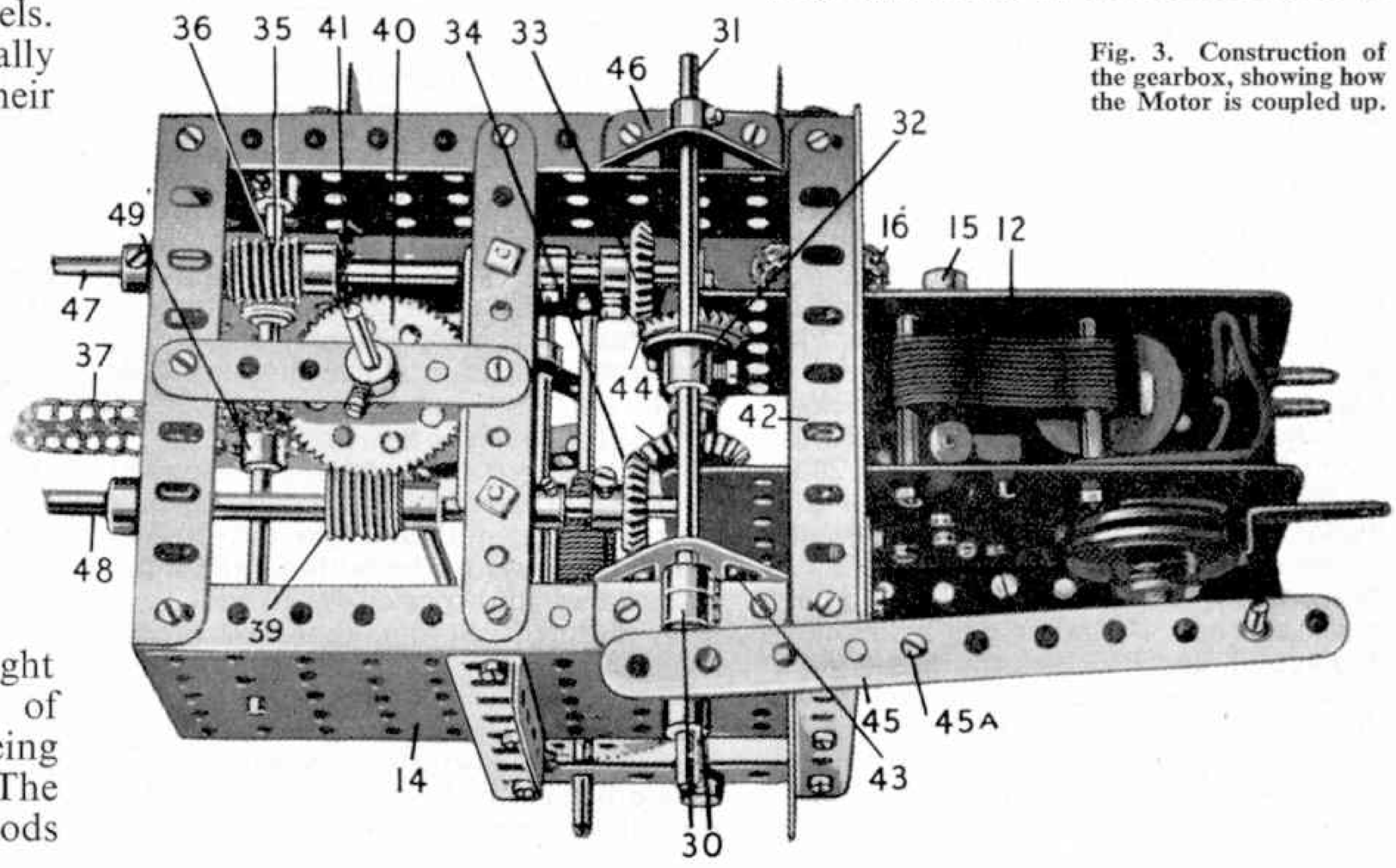
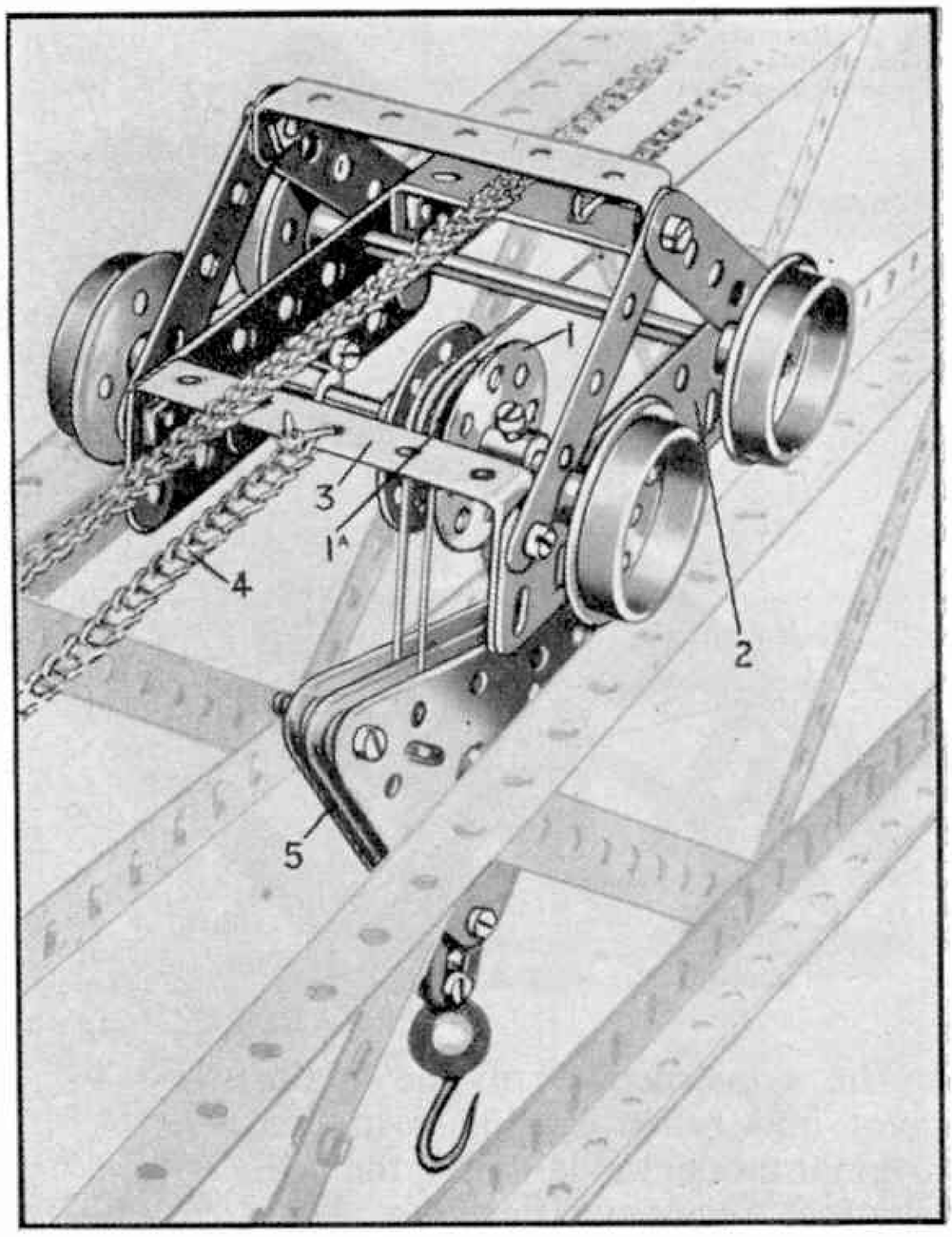


Fig. 3. Construction of the gearbox, showing how the Motor is coupled up.

Fig. 4. Construction of the traveller and arrangement of the hauling chains.



and engages with a further ½″ Pinion secured to a short Rod journalled in the end of the Motor. The latter Rod carries at its other extremity a further ½″ Pinion meshing with a 57-teeth Gear Wheel 43 secured to the Axle Rod of two Bevel Wheels 44. This Axle Rod may be moved endways in its bearings on operation of a lever 45. The end hole of a crank 32 is threaded on the axle between the bosses of the Bevel Wheels 44 and is retained in its position by means of two or three Washers placed on either side of the Crank. The latter is secured to a Rod 31 sliding in Trunnions 46, and the lever 45, pivoted at 45a, rests between two Collars 30.

SWIVELLING THE CRANE BOOM

The Bevel Wheels 44 are so arranged on their shaft that, on moving the lever 45, one or other may be brought into engagement with one of the two further Bevel Wheels 33, 34, mounted on secondary shafts 47, 48. Shaft 47 carries a Worm 35 driving a 57-teeth Gear Wheel on the Rod 36. A 1″ Sprocket Wheel 49 on this Rod engages a length of Sprocket Chain 37, which passes round a similar Sprocket Wheel 38 (Fig. 1) at the outer end of the crane boom. The ends of the Chain are attached to the carriage or "traveller"; hence rotation of the Sprocket 49 moves the traveller to and fro along the boom.

The crane boom is swivelled by means of the secondary shaft 48. This carries a Worm 39 (Fig. 3) engaging the 57-teeth Gear Wheel 40 on vertical shaft 41 (Fig 3). Shaft 41 carries at its lower end a 1½″ Sprocket Wheel engaging an endless length of Sprocket Chain which grips the circumference of the lower fixed Flanged Ring of the roller-race.

It will now be seen that a slight movement of the lever 45 will connect the drive from the Motor with either of two operations—swivelling the crane boom or propelling the traveller 12 along the rails 7.

The construction of the traveller is shown in Fig. 4.

"Spanner's" Special Section for Juniors—

(*Continued from page 370*)

Trunnions 13. Semi-Circular Plates 14 are also bolted in place at the same time.

To construct the sides of the hopper, two 2½″ × 1½″ Triangular Flexible Plates 15 and a 2½″ × 1½″ Red Plastic Plate 16 are attached by Angle Brackets to the Strip 7 on each side. Two 4½″ × 2½″ Flexible Plates 17 form the front and rear of the hopper.

Two 2½″ Strips 18, one on each side of the model, are lock-nutted to the 12½″ Strips 1. The sifter tray is a 5½″ × 2½″ Flanged Plate 19 and it is fixed to the Strips 18 and 3 by means of two 3½″ Rods held in place by Spring Clips. The Spring Clips are spaced from the Strips by means of Washers; this structure should then be able to pivot to and fro with the sifter tray remaining horizontal. A Double Bracket 20 is fixed to the end of the Flanged Plate 19 as shown. Next, Flat Trunnions 21 are bolted to the Strips 6 together with two Reversed Angle Brackets 22. These form bearings for two 1½″ Rods, each of which carries a Bush Wheel 24 at its inner end. On the outer end of one Rod is a 2″ Pulley 23, and on the outer end of the other is a 1″ Pulley with Boss. A 2½″ Strip 25, which forms a crank, pivots at one end on a 1″ Rod held in the Double Bracket 20, and its other end pivots on a ⅜″ Bolt 26 passed through holes in the two Bush Wheels. When the handwheel formed by Pulley 23 is turned the sifter tray moves backwards and forwards.

Parts required to build the Gravel Grading Machine: 2 of No. 1; 6 of No. 2; 2 of No. 3; 7 of No. 5; 1 of No. 11; 12 of No. 12; 2 of No. 16; 2 of No. 18a; 1 of No. 18b; 1 of No. 20a; 1 of No. 22; 1 of No. 23; 2 of No. 24; 6 of No. 35; 62 of No. 37a; 48 of No. 37b; 3 of No. 38; 2 of No. 38d; 2 of No. 48a; 1 of No. 52; 2 of No. 90a; 5 of No. 111c; 2 of No. 126; 2 of No. 126a; 1 of No. 188; 2 of No. 189; 1 of No. 190; 2 of No. 191; 2 of No. 192; 2 of No. 194; 2 of No. 214.

The Conqueror of Gaping Gill—

(*Continued from page 343*)

his wife told him she heard all he said over the telephone up to the point where the line broke. It was his receiver which had been defective.

Twenty minutes later a storm broke, and rain came down in sheets. Those who had gathered to see the day's events ran for shelter. By evening, the full force of the stream was being felt by Gaping Gill, and spray rose high above the dark hole on the fell.

The following May an Englishman, Edward Calvert, reached the bottom of Gaping Gill, using a windlass and bosun's chair. Today, pothole clubs have found alternative ways to the bottom, and miles of passages unsuspected by Martel have been explored. Several thousand people have stood in the main chamber, which is more than 500 feet long.

But Martel's achievement remains one of the finest in British potholing. It was also among the earliest, for this little Frenchman fired Britons to show enthusiasm for the world beneath their feet. Before long, all the open shafts on the fells had been conquered and an exploration begun of the 1,000-odd other water-worn systems in the limestone country.

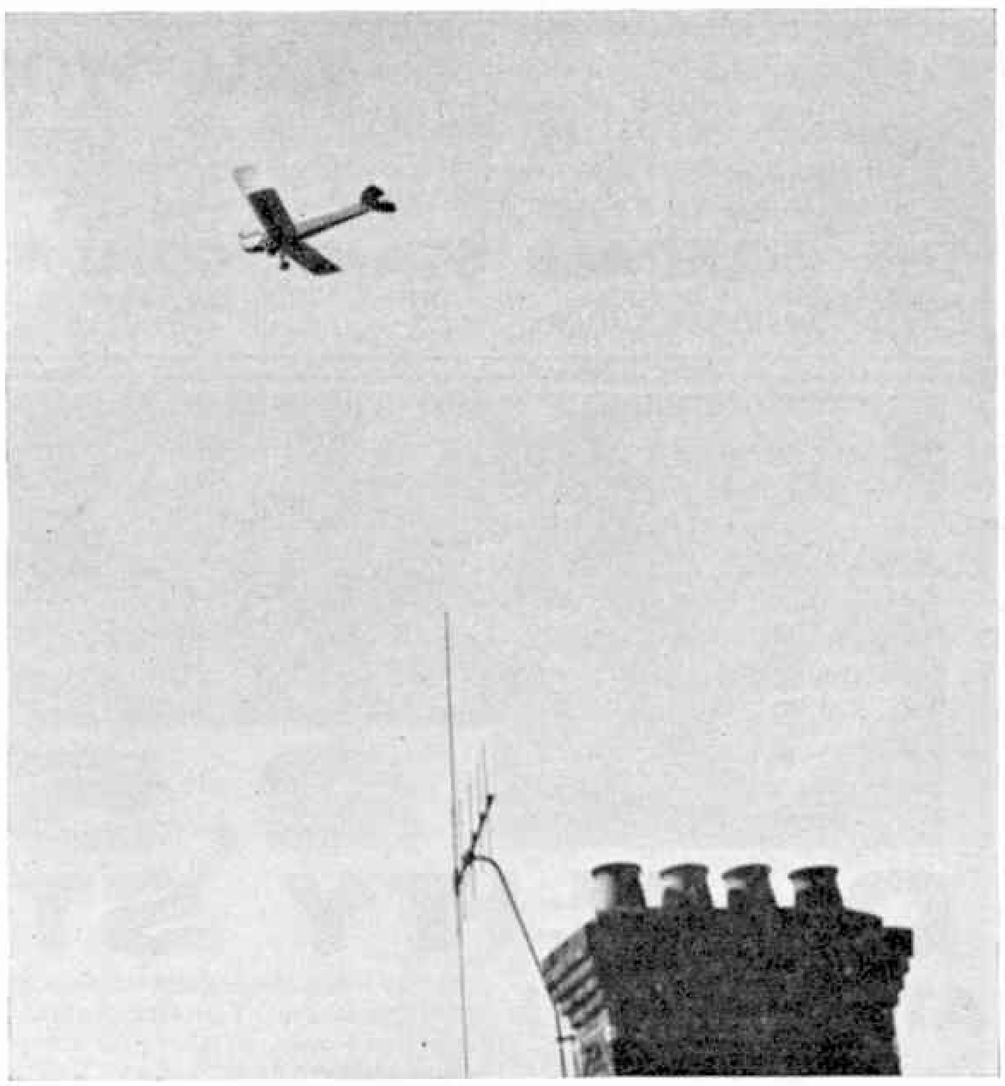
BOOK REVIEW

Narrow Gauge Railway Modelling, by D. A. Boreham (Percival Marshall, 21/–), covers the somewhat specialised field of railway modelling indicated in its title. There is a good deal to be said for the type of railway covered in the book, although examples of narrow-gauge lines which were fairly common years ago in these islands are now few and far between. Indeed British Railways operate only one such line carrying passengers, the Vale of Rheidol, but perhaps better known now are the enthusiast-operated Talyllyn and Festiniog systems, as well as the Isle of Man Railway and the unusual Snowdon Mountain Railway.

True modelling of many of the now-vanished prototypes involves a good deal of research, and the actual building of the locomotives and stock calls for a considerable amount of ingenuity and adaptation. A specially useful chapter, therefore, is that covering sources of information on narrow-gauge railways, while constructional features of locomotive and stock are dealt with by the author, and attention is given to typical layouts designed primarily for use at exhibitions. The book concludes with several appendices in which details of various actual locomotives, etc., are given. There are many diagrams, sketches and half-tone illustrations.

Specially For Photographers

Moving Aircraft Are A Challenge To Skill



Right: Although this aircraft was coming in to land, it was too far away to make a successful picture. Below: This air-liner was caught by panning the camera. Shutter speed was only 1/25th sec., but the 'plane is perfectly sharp and the blurred buildings in the background give a good impression of speed.

By H. G. FORSYTHE

AIRCRAFT, moving at great speed and usually a long way off, are hardly the easiest subjects for photography. Yet, if we apply some of the basic rules of good photography, satisfactory and exciting 'plane pictures can be taken—even with the simplest of cameras.

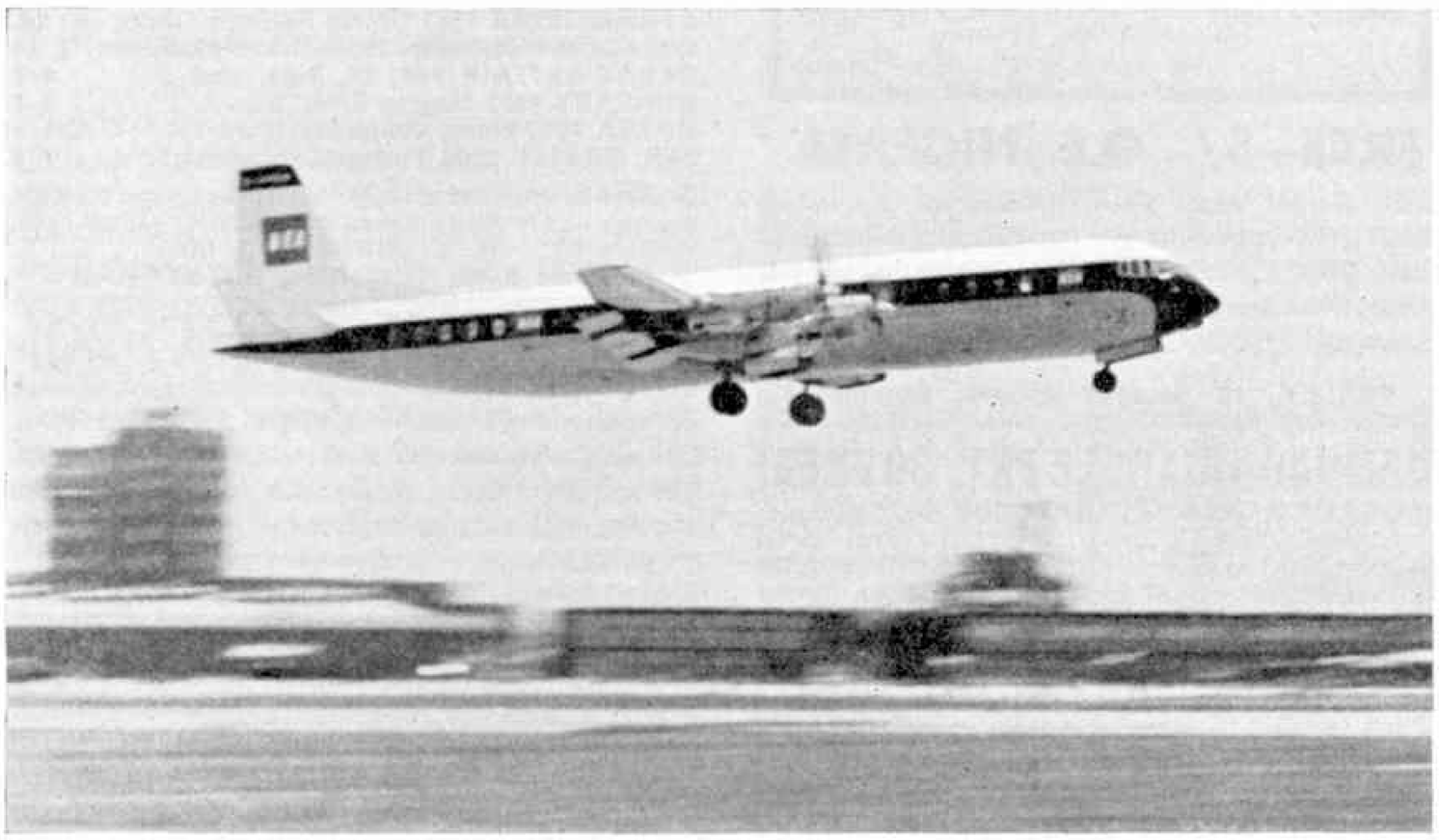
An aeroplane in flight often looks deceptively large. Try to photograph it, however, and unless it is flying very low indeed it will turn out as a tiny speck in your picture. Just look through your viewfinder at the next aircraft that flies over and you will see what I mean. Do not try, therefore, to take pictures of 'planes in flight unless they are low enough to be framed properly in your viewfinder.

Exception to the rule

There is one exception to this general rule—pictures taken of numbers of aircraft flying in formation. Your picture will show the formation as an interesting pattern but there will be scarcely any details visible in the individual aircraft.

Undoubtedly, the best pictures of aircraft in action are to be had just as they are landing or taking off. At many of our big airports there are vantage points open to the public where it is often possible to get fine action pictures. Nearly broadside-on shots are best. Unless you have a camera with a very fast shutter speed you will need to use the panning technique. The Meccano Sports Viewfinder, described in the July issue, is a great help in taking this kind of picture.

To get a sharp picture of an aircraft by panning, hold your camera firmly and locate the 'plane in your viewfinder while it is still some distance away—gathering speed for take-off, for instance. As it comes nearer keep it centred in the viewfinder, swinging your body round smoothly to follow your subject, finger resting lightly on the shutter release. As the machine moves directly past you, press the shutter release *but keep on swinging smoothly round.* If you don't, it is all too easy to stop swinging an instant *before* you press the shutter release.



An impression of speed

Using the panning method you can get really sharp pictures of aircraft with slow shutter speeds. The background will be blurred, but this often helps to give a good impression of speed.

Air displays also present opportunities for action pictures. Here too, there are many interesting studies to be had of aeroplanes on the ground.

My old favourite a medium speed film is ideal for aircraft photography, and a light yellow or green filter will help darken skies, proving just as useful in aircraft photography as in the case of ships.

Pictures from the air

If you ever go on holiday by 'plane you may have the opportunity of taking pictures *from* the air. If the chance does arise, here are a few tips. Hold your camera steadily by hand—don't rest it against any part of the aircraft—vibration will blur your pictures. Use as fast a shutter speed as possible and do keep exposures very short—at least one quarter of the exposure you might give on land. Finally, you should make sure before your journey that photography is allowed by the countries over which you will pass.

Next month: Another action subject—Animals.

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FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 379

For Stamp Enthusiasts

Family Fun

By F. E. Metcalfe

RECENTLY I had a most interesting conversation with a friend just back from a holiday in Scandinavia. He had gone in his car, accompanied by his wife and 14-years-old son. Apparently, they had had the time of their lives; the food in Copenhagen, the beauty of Stockholm and the friendliness of Norway had given them a keen desire to repeat the trip, if not next year then certainly the year afterward.

They are a rather unique family, for not only is my friend, as well as his son, an enthusiastic collector, but his wife is also quite keen on stamps, so all three can be said to be "sold" to the hobby. They have ploughed their own philatelic furrows, so to speak until now, building up their own collections. Father's is by far the most important, and that of his wife the result of "fits and starts" rather than of systematic collecting. For quite a time they had rather favoured going in for a joint collection, but they never really solved the problems involved as, thanks to that hoarding instinct present in all true collectors, they also wanted their own collections. Their trip solved the problem.

Off they went to Scandinavia, first stop Copenhagen. They decided to maintain their present collections, for the time being at any rate, but to go in also for a

Scandinavian collection of modern stamps. The idea actually came from a talk they had with a Danish collector, and this is how they proposed to work it out. There were three countries involved—Denmark, which my friend would take over; Norway, allocated to his wife; and Sweden, allocated to the son. My friend would have liked to have gone in for all Danish stamps, perhaps, but he knew that the early issues of Norway and Sweden would prove too much for the rest of the trio, so it was decided to start the collections from around 1920. A glance through *Gibbon's Simplified Catalogue*—the guide they proposed to follow—will show that there are plenty of stamps to keep them busy.

Again, my friend would have preferred to collect on a more extended scale, as by collecting only face different stamps (which are all there are to be found in that particular catalogue) all varieties are ruled out. But knowing my friend, I do not think he will be satisfied to collect on such primitive lines for so very long, and perhaps his son will follow his possible lead as time goes on. Yet even so, as the collections will be separate, as well as joint—if you see what I mean—they will have freedom in their own special field. I think it is a wonderful idea, and that is why I am giving details here, as there are others, perhaps, who might like to follow suit.

They need not, of course, pick the same countries as the three mentioned here. Any group of countries will do if the idea involved is followed—that is, that all secure what stamps they can and that these are then handed over for mounting by whoever is in charge of the stamps of the country concerned.

After my friends had decided the line to follow, they visited a stamp shop in Copenhagen, and the dealer there put them up quite a nice collection of used Danish stamps—picked copies for condition. They had the same luck in Oslo and in Stockholm.

I am always emphasising that it is false economy to buy stamps in poor condition, which is the reason why I am always a little scared of packets. The friend I am writing about is an old hand, however, who knows all there is to know about the necessity to collect only the best. In any event, on the Continent they are very particular about the condition angle, and as the collections my friend and his family bought were made up specially for them and all the dealers concerned were completely reliable, back came the family with a fine lot of Scandinavian stamps to work on. My friend is really excited at the fun they have been having mounting their purchases.

While they were abroad, there was a good deal of discussion as to the albums they should use. They had seen some rather showy-looking ones, but had decided—wisely in my opinion—to go in for British albums. Of course, they had to buy three—father two (he bought one for junior as a birthday present) and mum one. Now albums are dear things in these days and you can if you are well off pay up to £12 for one. (As an example of how albums have gone up in price, one which once upon a time sold for 5/– now costs over 30/-). In this important matter my friends made another wise choice, I think, in buying three Prangnell's Merton albums. These albums cost 28/6 each, hold a lot of stamps, and with care will last a lifetime. Moreover, pages can be added or withdrawn by the simple operation of merely bending the spring back cover.

There will not be anything spectacular about these collections of my friend and his family for a long time, if ever, but I do know they are going to provide a great deal of fun for all three members.

As I have already mentioned, such a family collection need not consist of Scandinavian stamps, although, in this case it was a very good choice as these countries have produced a lot of very interesting stamps—an ideal situation for

such a venture—and there are plenty of used to be had at very little cost. With such a collection it is just the fun of the thing that matters, as no one wishes to spend a lot of money, hence the necessity to collect the stamps of countries where there are plenty to be had cheaply.

I set out to write mainly about the modern stamps of Scandinavia, but this question of family collections has taken up my space. Such collections have the advantage of "all for each, and each for all", and as a family hobby they are quite a good thing. If you decide to adopt the idea I am sure you will not regret it.

Stamp Gossip

Stamp Auctions

IT is not so long since I received an inquiry from a collector about stamp auctions. He seemed very interested, and I told him that they are a good medium for obtaining stamps, providing you have the money to spend (each lot auctioned generally runs to a pound or two, or more) and also if you know your stamps—that is, the stamps you propose to bid for. London is the world's leader in stamp auctions, but there are some good ones in the provinces held in some of the bigger cities. If one such auction comes round your way it would be worth your while to visit a session, even if you did not intend to buy.

Here is a perfectly true story about an auction. A dealer bought a lot of mixed stamps, and going through them later, more carefully than he had done in the first instance, came across a G.B. variety catalogued at £10 used, with no price for mint. The copy he found had no gum and was very much off-centred, and it remained in his shop window for many weeks, priced at £10, before a regular customer bought it. The dealer was quite happy to have made the sale. Then, a few months later, the buyer came into his shop—with a suitcase, which he opened. From it he took six bottles of whisky and put them on the dealer's counter. "What are these for?" asked the dealer. "They are a present" was the reply "I sold that G.B. stamp in a London auction for £110." The dealer needed all that whisky to bring him round!

Was the stamp worth all that money? I do not think so, but apparently two collectors at the auction were keen to get it—and that is the point of the story. If you attend an auction make sure you know what you want to buy, and what the item is worth, and when bidding for it starts, keep your head.

NEW FRANCE

I wonder how many who will read these lines will connect the heading of this paragraph with our sister country, Canada? Well, New France was the name originally given by our friends across the Channel to that huge North American dominion, and a Canadian stamp issued on June 13 last connects up with the seventeenth century. According to history the man honoured on it, Jean Talon,

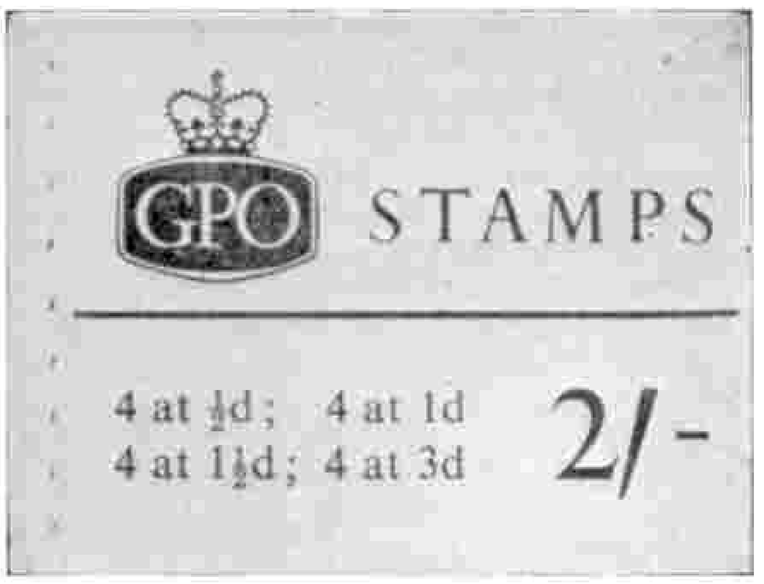
played a great part in the advancement of Canada, and, as the Post Office has it, during his tenure of office as Intendent of New France from 1665 to 1668 he worked hard and successfully to place that country on a sound economic foundation. A young officer wrote at the time, referring to Talon, "the Governor-General bestowed upon the married couple a bull, a cow, a hog, a sow, a cock, a hen, two barrels of salt meat and eleven crowns". And this gift is depicted on the new stamp. Say what you like, there is quite a lot to be learned from postage stamps if, instead of just sticking them into a book as though they were tram tickets, you take the trouble to study the designs.

VARIETIES

I recently received a letter from the principal of a school in North Scotland, saying that some of his boys who are interested in stamps had found in a stamp booklet some stamps which were imperforate, and they wondered if these were valuable. No doubt they had seen in the newspapers accounts of booklet stamps, which being really imperforate brought several hundred pounds. However, the stamps about which my correspondent wrote were not the right thing at all, as in the chopping up of the sheets of stamps to make into panes for booklets, all that had happened was that the teeth surrounding the outside of the panes (as collectors call the small sheets of six) had been cut off in the process.

BOOKLETS

Here I would like to put in another word about stamp booklets in general. A little time ago there was a letter in one



of the newspapers in which the writer complained that the Post Office was wasting good money in advertising these useful items. Obviously the writer of that letter did not know as much about the subject as did the Post Office for, as can be seen in any post office, relatively few people buy booklets, yet so many more could save themselves and the Post Office much time and trouble if they did. As far as stamp collectors are concerned, these booklets are real treasure troves, as it is only in booklets that the much cherished stamps with inverted watermarks are to be found. In 2/- booklets are even to be found stamps with the watermark sideways. Yes, booklets are a gold mine for collectors—and for the general public a gold mine in saving everybody's time.

THE TIP OF THE MONTH

Just about the time these lines appear in print Trinidad will be starting out on it's own, free to choose it's own path, and everyone must wish it well. As for it's philatelic path, I am sure it is likely to be strewn with sets of stamps every once in

(*Continued on page 380*)

By E. W. Argyle

Locomotives On Stamps

SHOWN on this Finnish 40mk. stamp is an Hr 12 class diesel main-line locomotive (type numbers from 2200 upwards), which is used both for passenger and goods traffic. Weighing 100 tons, it has a maximum speed of 120 km./h.; with a 1900 h.p. motor. This type was first used for service in 1959 and there are about 30 of them now in use. The number is constantly increasing.

The 2–10–0 class twin-cylinder goods locomotive, series 5560, built for the Czechoslovak State Railways by Skoda, at Pilsen, in 1952, is said to be one of the most economical engines in Europe. It is used on the haulage of heavy goods trains on main lines, and has a high continuous output and tractive effort, high economy and reliability. The third axle is the driving one. The spacious cab is completely enclosed. Weight of the locomotive when empty is 86.4 tons; in working order, 95 tons. The locomotive on the stamp was shown at the Leipzig Spring Fair in 1955.

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FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 376

Calling All Bus Spotters

Trends Over The Past Ten Years

London Transport Routemaster RM.758 of Edmonton Garage standing at the Waltham Cross terminus of route 127 which runs from Waltham Cross to Tottenham Court Road. Photograph by P. Paye.

IF you are within easy travelling distance of London do not forget that between September 21 and 29 you can see the Commercial Motor Show at Earl's Court, which is held every two years. I hope to publish a full report on this show in the December *M.M.* Meanwhile, as an introduction, it might be profitable to take stock of the five previous shows to see what the trends of the last ten years have been.

By DAVID KAYE

In 1952, the current models being shown included the "Regent" III made by both A.E.C. and Crossley. Leylands had a PD 2/12 on display in the livery of Midland Red. No. 3978 (SHA 378) was the last vehicle belonging to this operator to appear at the show because normally this firm manufactures its own buses and coaches. A.E.C. "Regal" IVs in the livery of B.E.A. and London Transport (RF 330), along with the Dennis "Lancet" UF model (Aldershot and District 187), were the chief attractions among the single-decker exhibits. Although the maximum seating capacities of single-deckers (44) and coaches (41) sounds quite modern, in 1952 the best that a double-decker could offer was 58 seats by "Regent" IIIs supplied to Leeds (800) and Sheffield (119)!

Moving on to the 1954 show the wind of change had begun to blow with the appearance of such current models as the A.E.C. "Regent" V, with its new look front, and the A.E.C. "Reliance", no fewer than eighteen versions of which were exhibited. Another A.E.C. product—London Transport's first "Routemaster" (SLT 56)—made quite an impression on both Press and public. Since that date, its external appearance has been modified. The ancestor of the Leyland "Atlantean", called the "Low Loader", made its first appearance. STF 90 had a rear engine and a rear-entrance 61-seater Saunders Roe high bridge body. Another sign of the times was the arrival of the Commer "Avenger" powered by a 105 b.h.p. TS 3 two-stroke engine, which has become so popular among coach operators since then.

The era of the "Minis" was ushered in by Trojans with a 13-seat Strachans body and an overall weight of a mere 1 ton 11 cwt. Dennis Bros. introduced their last single-decker, the "Pelican", but it was not until the 1956 Show that this was seen with a body. Double-deck capacity had risen to 65 with the showing of Walsall's 821—a Daimler CVG 5 with a Northern Counties body. However, it was the 1956 Show which introduced us to the double-deck giants. The first proper "Atlantean" PDR 1 (281 ATC) decorated the Leyland stand with MCW low bridge 78-seat body, which amazed most of the visitors. On the other hand, the other new Leyland model—the PD 3/2—in the form of "Potteries" H7700 seated only 74 passengers, while the same number could be carried by a Daimler CVG 6/30 owned by Walsall (No. 824). The most any of the "Bridgemaster" 30-footers could manage was 72 seats. A Guy "Arab" IV

(*Continued on page 381*)

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Circuit 24—(*Continued from page 348*)

also includes an exciting fly-over bridge. In the two largest sets are bricks which fit beneath the track so that curves can be banked in realistic fashion and it will be found that these bricks have other uses also around the track.

The circuit operates at 24 volts A.C. (full boost) and 20 volts (normal speed). In all sets the cars provided will be matched for speed so that the operator's control will be the deciding factor. All the conditions are there to bring about the fantastic thrills of a real road event, and spins and skids are part of the challenge that lies ahead of the "Circuit 24" enthusiast.

The cars themselves vary a little in characteristics. For instance, the Panhard will be quieter than the Ferrari when running, but on acceleration a realistically designed "exhaust" note will be audible.

Accessories and additional track will be available so that extensive layouts can quickly be built up and provision has been made for track to be screwed to a baseboard if required.

"Circuit 24" sets, packed in attractive boxes which carry a scene in vivid colour based on the Le Mans circuit itself, are now available and full details of the items included in each outfit can be obtained from any Meccano Dealer.

One final word—a 24-page Book of Instructions in each set gives the owner all necessary information about track assembly, car maintenance, etc. The book also sets out general rules for racing which will be welcomed by all enthusiasts, although probably every home will have its own particular way of conducting races in which all members of the family can well take part.

The Electronic Eyes of a Steelworks—

(*Continued from page 349*)

into a red-hot, bucking, undulating strip of steel between 26 inches and 72 inches in width travelling at a rate of 2,000 feet a minute. At the end of the run-out table, beyond the last rolling mill, the strip is led into a coiling machine which rolls up the metal as if it were so much paper.

At their console, which bears a marked resemblance to an electronic organ, the operators select one of several coilers and control the long strip of metal as it comes from the mills, the time-gap between the tail of one strip and the nose of the next being a matter of only a few seconds. Once again there is a television camera close at hand to enable the operator to see the run-out table and the metal itself as it approaches the coilers. Thus he can take immediate action should his monitor reveal the slightest indication of fouling up on the production line.

The Marconi Vidicon camera—the type used by the Steel Company of Wales—is eleven inches long and four inches in diameter, and is contained in a cylindrical, dustproof case. The video signal from the camera is amplified and converted to a composite signal in a control unit and is fed to the monitor.

Closed-circuit television n the steel industry has two main problems—light and heat. Background lighting is generally poor, particularly at night, but when red-hot metal is being scanned the light intensifies so greatly that very high contrast on the monitors results.

It is obvious that when a delicate instrument such as a television camera is subjected to intense heat, it must be protected. After exhaustive tests, systems have now been devised in which the electronic equipment is contained in water-cooled and air-cooled housings. These housings are used for those installations which are particularly close to the hot metal and for those at the reheating furnace.

Closed-circuit television is only one of the many complex pieces of electronic equipment which now take their place in a modern steel plant. It plays a most important part in making one of Britain's basic industries more efficient.

Air News—(*Continued from page 351*)

will be a long way through the sound barrier, approaching 1,250 m.p.h."

From this, it seems as if Russia, like Britain and France, believes it is more sensible to aim at Mach 2 (twice the speed of sound, or 1,320 m.p.h. at height) rather than Mach 3 for its first supersonic airliners. However, Myasishchev added that high speed by itself is not enough. Pointing out that people often spend longer getting to and from airports than they do in flight, he said it is important to perfect short take-off and vertical take-off aircraft which would not need large airports.

Such comments from Myasishchev are interesting, because it has long been thought that he was responsible for the huge four-jet, delta-wing, supersonic bomber, code-named *Bounder*, which took part in the 1961 Soviet Aviation Day air display. Lessons learned with *Bounder* would be of great help to the designer of a supersonic airliner.

The Tracing of the Takahe—

(*Continued from page 353*)

the Takahe of Takahe Valley when their colony was discovered nearly 100 years later. On the contrary, they have been treated with every courtesy and consideration ever since their privacy was invaded in 1948. So far none of *their* skins adorn our museums as does that of their cousin of 1849, whose skin was secured by Mr. W. B. D. Mantell, of Wellington, and is preserved in the British Museum.

The second specimen was caught in 1851 and its skin is now in the Dominion Museum, Wellington. When I saw it many years ago—when the breed was believed extinct—I felt very sad to think that such a fine, handsome bird, with such strikingly beautiful plumage had disappeared from the earth forever. Imagine how delighted I was to learn, many years later, that such was not the case and that at least a few Takahe are still holding their own.

Narrow-Gauge Line in the Black Forest—

(*Continued from page 362*)

In order to convey standard-gauge goods wagons on the narrow-gauge railway, a Swabian* invented the so-called "Rollbock" (bogie-jack), by use of which the need for trans-shipment is dispensed with at the change from one gauge to another. The standard-gauge wagon is shunted over a pit in Nagold, within which runs a narrow-gauge track. A forked shaft is pushed up under each standard-gauge axle and this raises the wagon so that it can be taken over the narrow-gauge line with very little additional fastening.

(**Swabian—An inhabitant of that part of Bavaria still known as Swabia or Schwaben.*)

Stamp Gossip—(*Continued from page 378*)

a while. It can go over to a private agency for the external handling of its stamps, as did Ghana, or it can choose the wise course, like Sierra Leone, and remain with the Crown Agents. Anyhow, it is the set which was issued as recently as 1960 about which I want to put in a word. This was Trinidad's last definitive issue under the old order, and while it is true that most of the values used are at the moment readily obtainable, I am sure that a full set of fine used copies, bought at today's price, will prove quite a good investment in the not too distant future.

Dinky Toys News—(*Cont. from page 361*)

matter to pin backgrounds in place for hills or to paint them oneself. If, however, a separate baseboard is used, you can create hills by building a framework of wires or blocks of wood, and applying crumpled brown paper which can be fastened or glued to represent the hills. To finish them off, apply paint of suitable colours and here and there a little sand can be sprinkled over, before the paint dries, which will give a fair representation of rock face and those rough passages one sees on hills everywhere. Roads should be coloured with a grey or brownish surface, and in a country scene can be edged by railings or fences which you can cut from cardboard or make with matchsticks or thin wire. Alternatively, realistic hedges can be made by cutting a loofah into strips and dyeing it green.

Trees placed in appropriate positions take away the bareness of the layout and can be made by using heavy-stranded wire. By twisting and forming lengths of wire you can make branches; paint the tree itself in a suitable brown, allow the paint to dry and you can then glue tufts of sponge or cotton wool over the branches and these can then be coloured green.

Calling All Bus Spotters—

(*Continued from page 379*)

of Lancashire United Transport (603) had 73 seats. This, too, was the year that Dennis displayed their "Loline" chassis for the first time. In the single deck range the useful Albion "Nimbus", with its short 31-seater body in Southampton livery (ROW 700) demonstrated the need for a shorter vehicle for narrow, tortuous country routes or those through certain housing estates. The accent on P.A.Y.E. buses began to be noticed, and Fords entered the p.s.v. market tentatively with a baby 19-seater—a future threat to Bedfords. Guys brought out a new single decker called the "Warrior" LUF, but it was really too late to capture this field.

Two years later, at the 1958 Show, the first production "Routemaster" for London Transport (RM 8, VLT 8) could be examined. The only new model at this show was the Albion "Aberdonian", which was a gamble in the long-distance express market. Air springs and front entrance double-deckers began to be much in evidence that year, as did small 12-seaters, encouraged by the Ministry of Transport to help save country routes threatened with extinction by rising costs.

* * * *

The 1960 Show brought before the public several interesting new models, including the revolutionary Guy "Wulfrunian" with its 75-seat body made by three different manufacturers—Park Royal (Bury 101), Northern Counties (L.U.T. 58) and Roe (West Riding 864). A rival—the Daimler "Fleetline" demonstrator 7000 HP—had a 77-seat Weymann body. Three models of the now very popular Ford "Thames Trader" coach were exhibited, and Leylands launched their equally successful "Leopard". Bedfords showed their J2SZ2 15-seater coach, and Trojans had on view 25 cwt. 11 and 13-seater buses. London Transport felt the need to indicate that they were still receiving "Routemasters" by placing RM 422 (WLT 422) on a stand. However, perhaps the most startling p.s.v. at Earl's Court two years ago was Barton 861, a Dennis "Loline" with wrap round windscreens and a new record low height of 12 ft. 5 in.

Some operators have not missed a show in ten years—Glasgow Corporation, for instance, with eight entries in ten shows and Lancashire United Transport with six vehicles during the same period. Walsall Corporation did not exhibit at the 1952 Show, but since then they have displayed eight buses at the remaining four shows (Nos. 821, 822, 823, 851 in 1954; 824 and 826 in 1956; 800 in 1958; 885 in 1960). East Kent, Western Welsh and North-Western liveries have been seen at four of the recent shows too.

What will the 1962 Show reveal? There will be plenty of 36-foot single deckers, with capacities up to 55 seats, and presumably the "Lowlander", in some form, will make its London debut. And, of course, there are often last-minute surprises.

Fireside Fun

The will of the wealthy, eccentric man was being read and the relatives all listened expectantly.

Finally, the lawyer said, "And to my nephew, Charlie Jones, whom I promised to remember, 'Hi, there, Charlie!' "

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"Well," he replied, "there's some fool upstairs keeps tearing them in half."

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Second policeman: The Mayor had leaflets distributed yesterday, asking people not to throw paper about.

"Now there's a technique you don't often see."

"I wonder," said a man, "who invented that superstition about Friday being an unlucky day."

"Oh," replied his companion, "some poor fish."

* * * *

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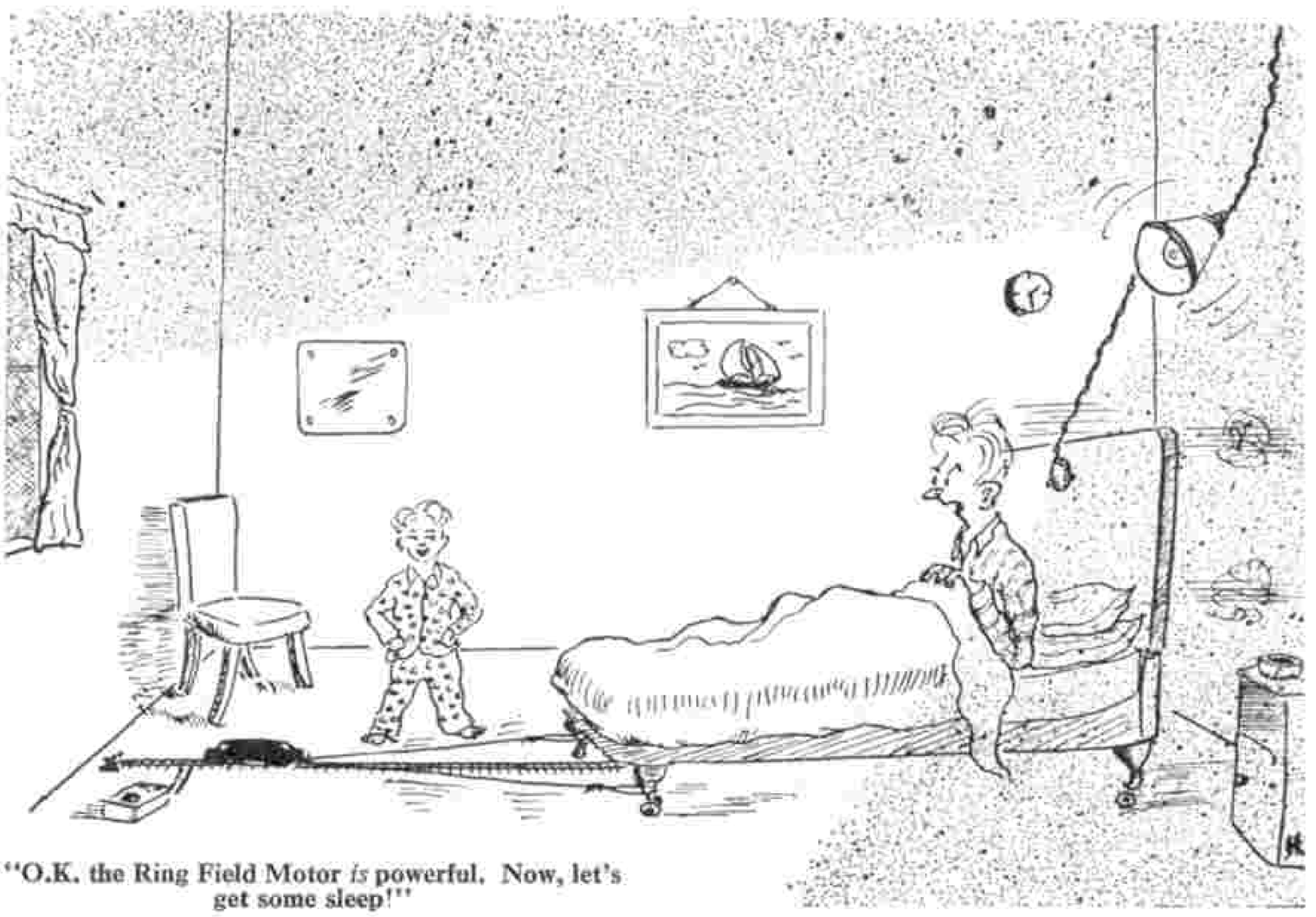

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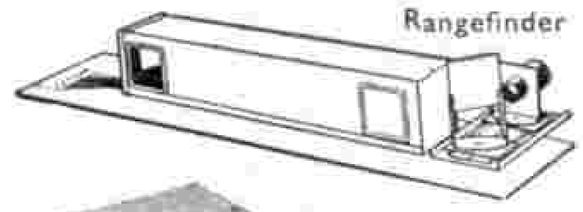
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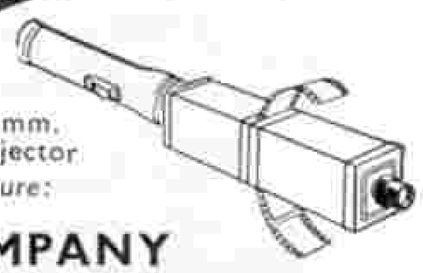
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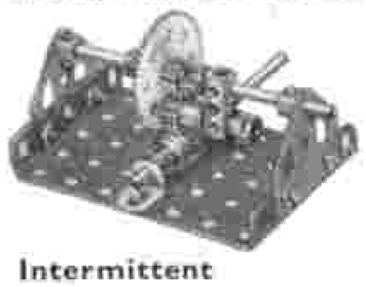
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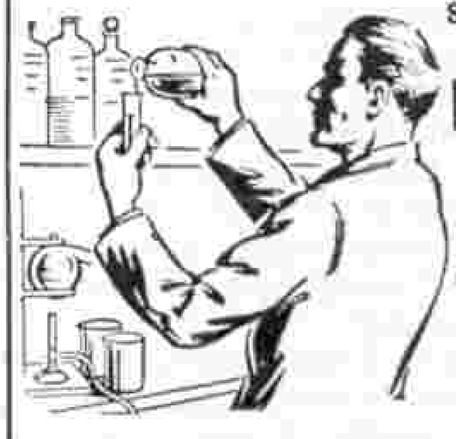

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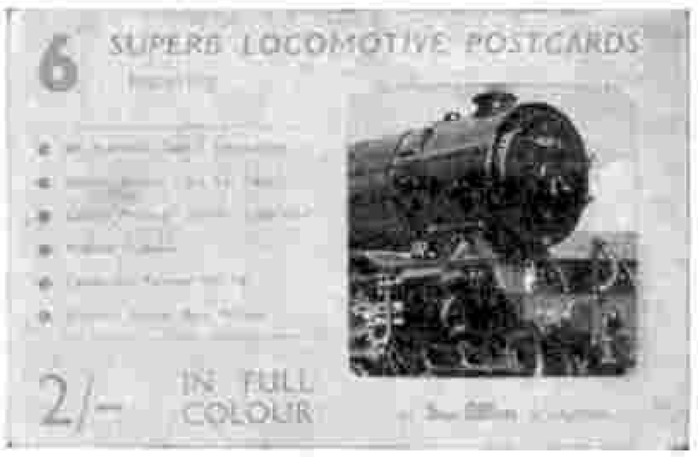

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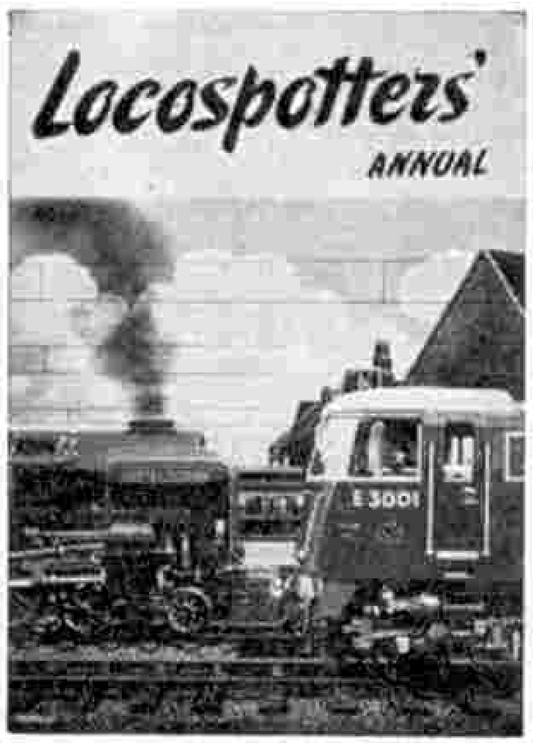

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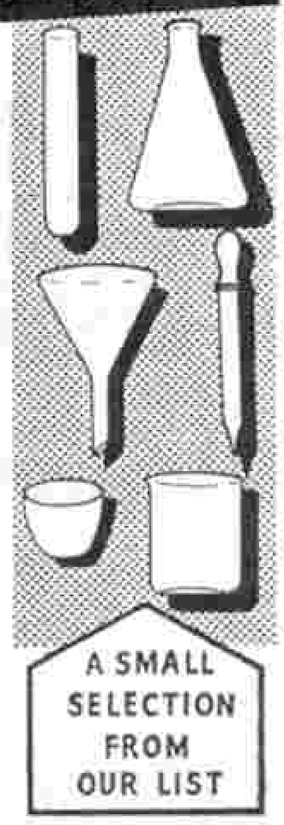

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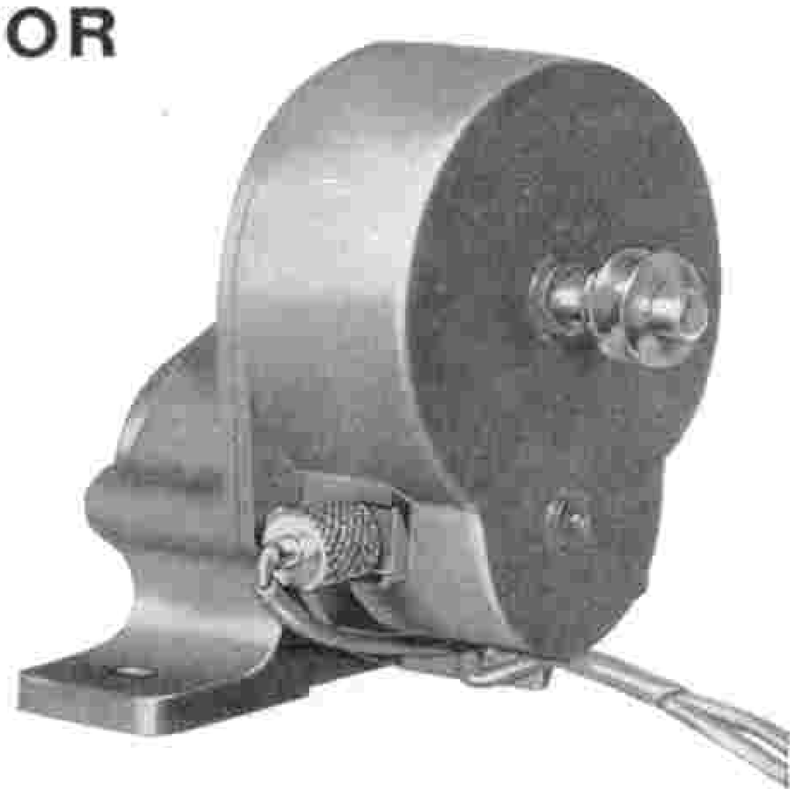

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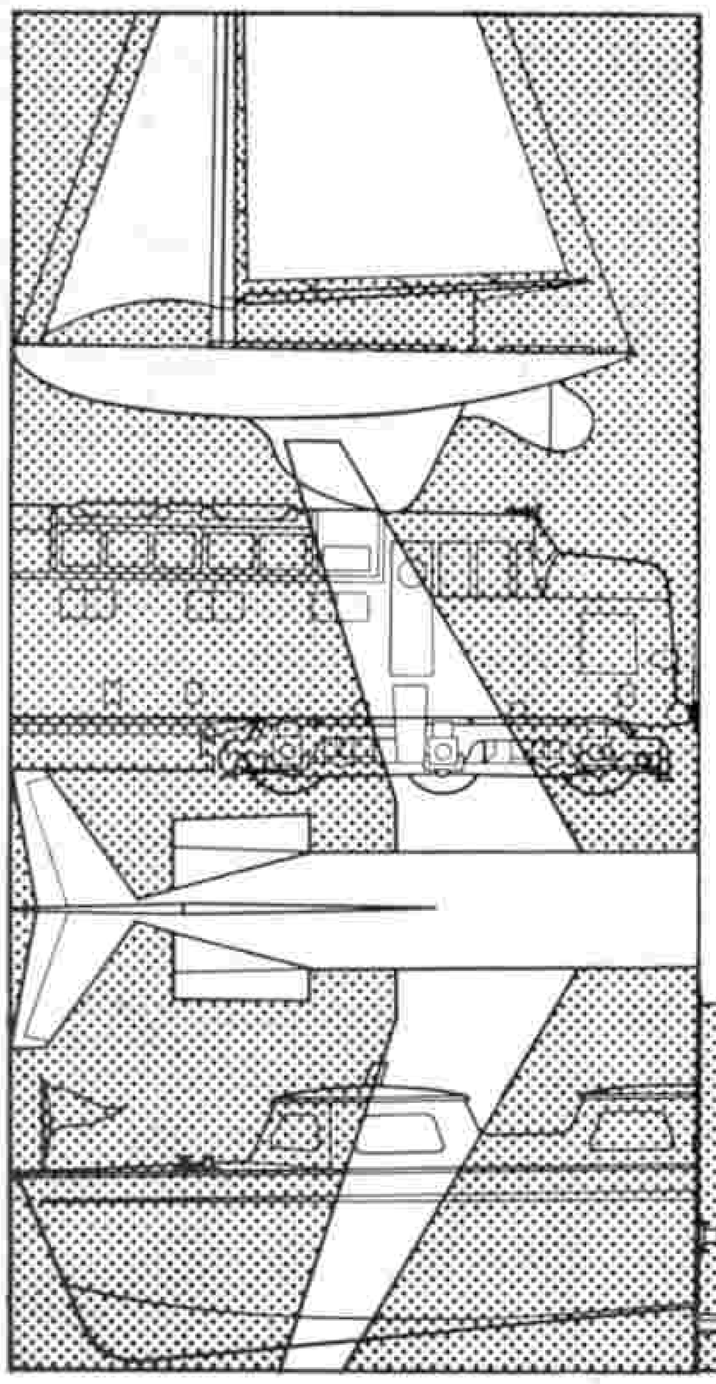

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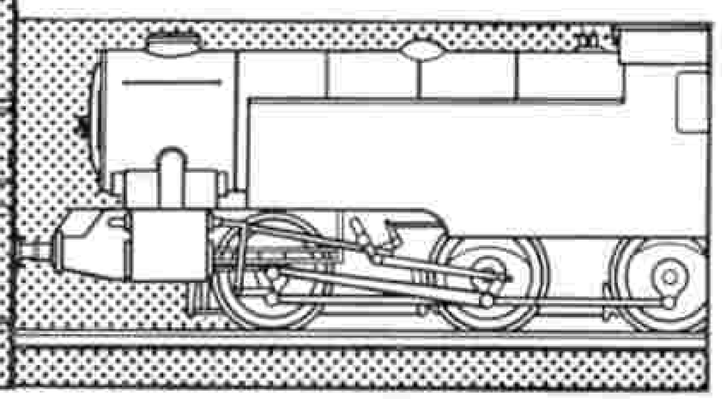

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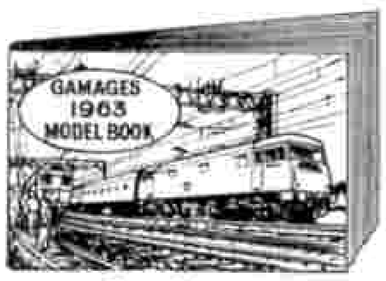

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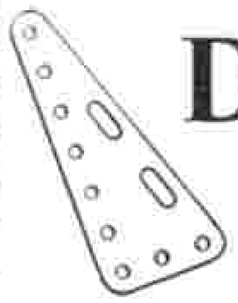

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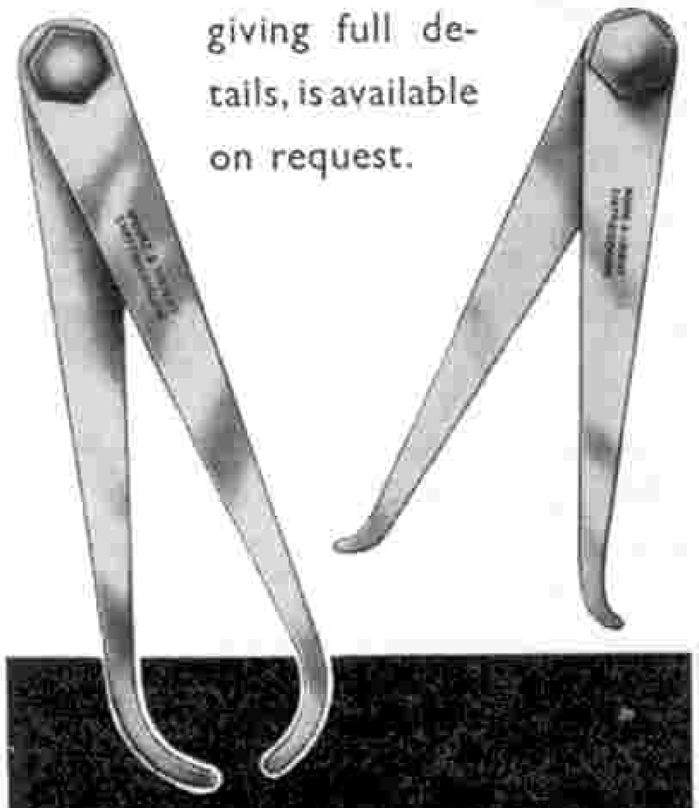

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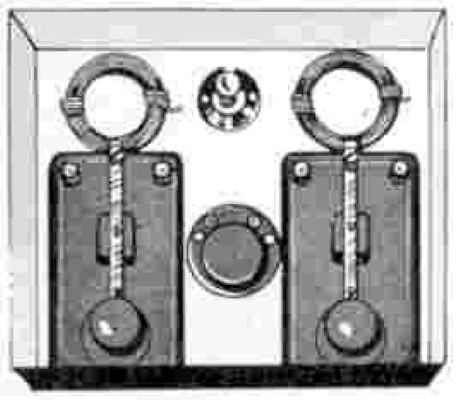

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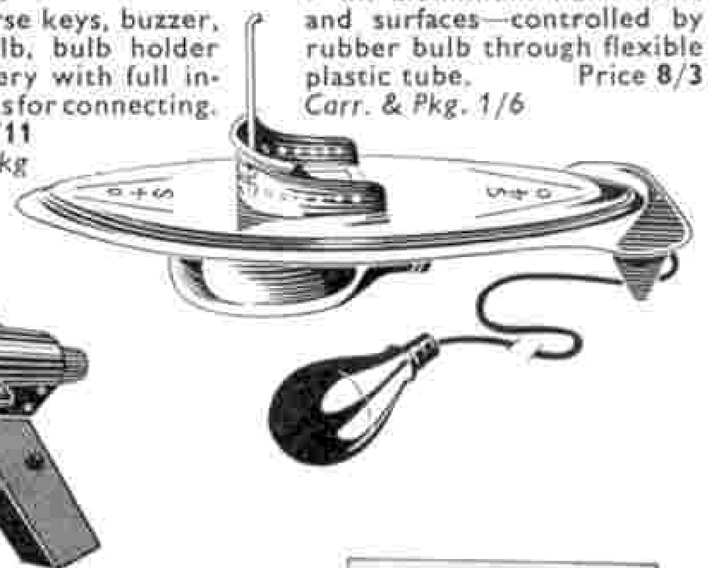

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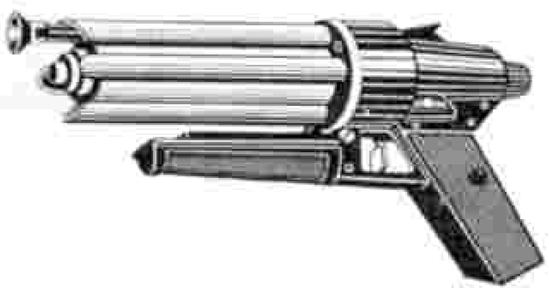

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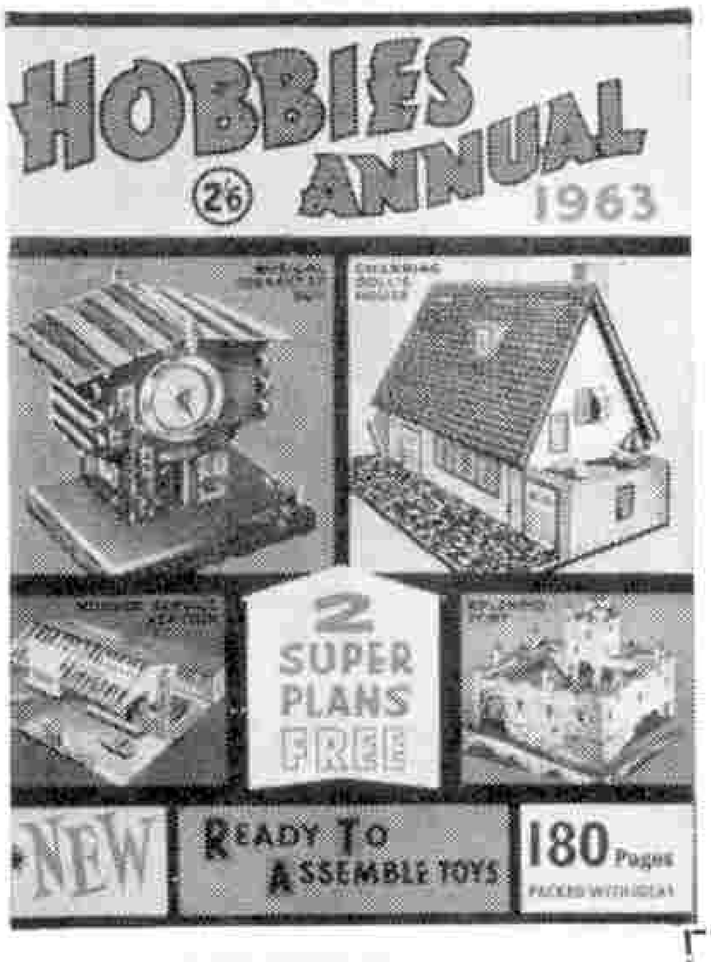

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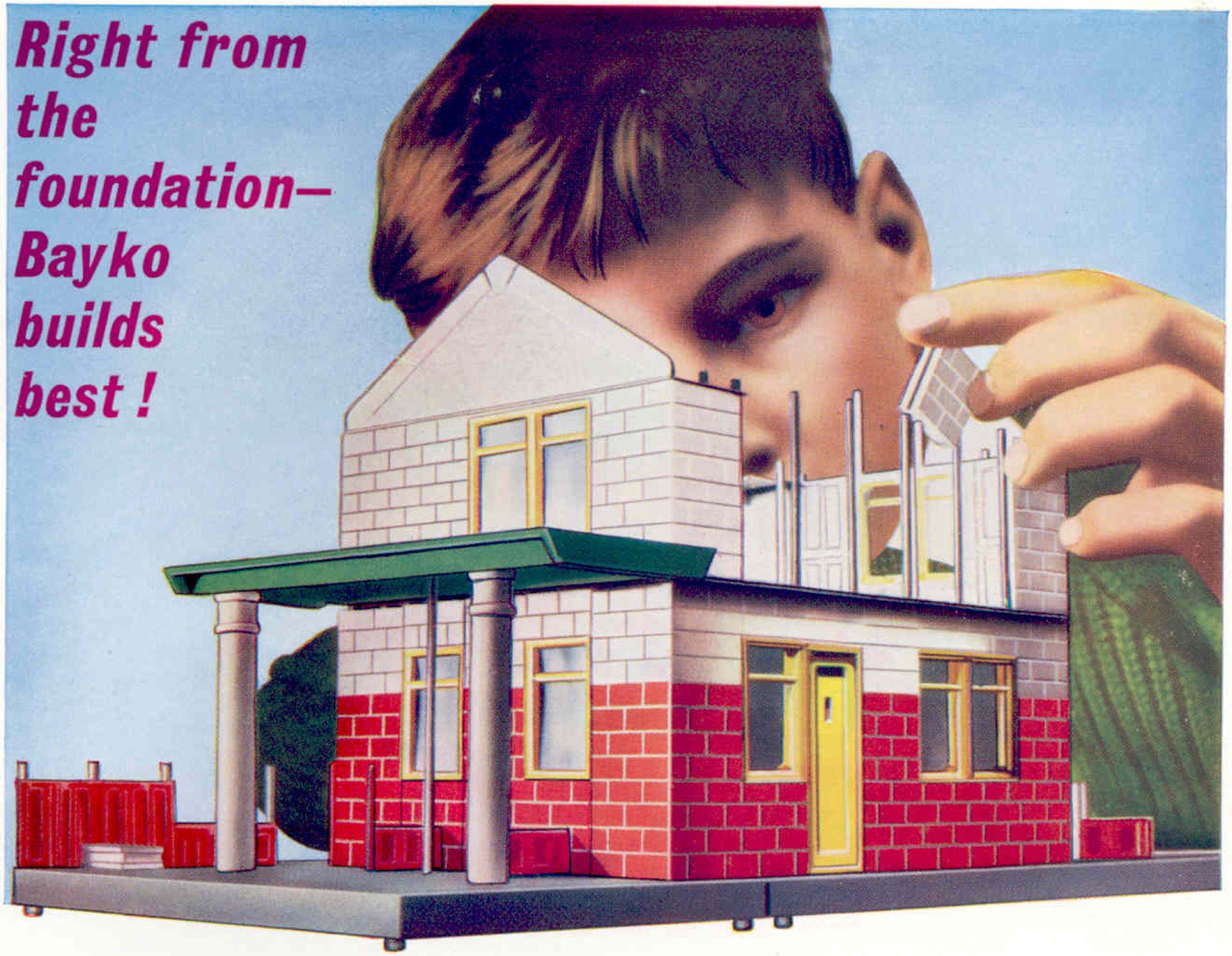

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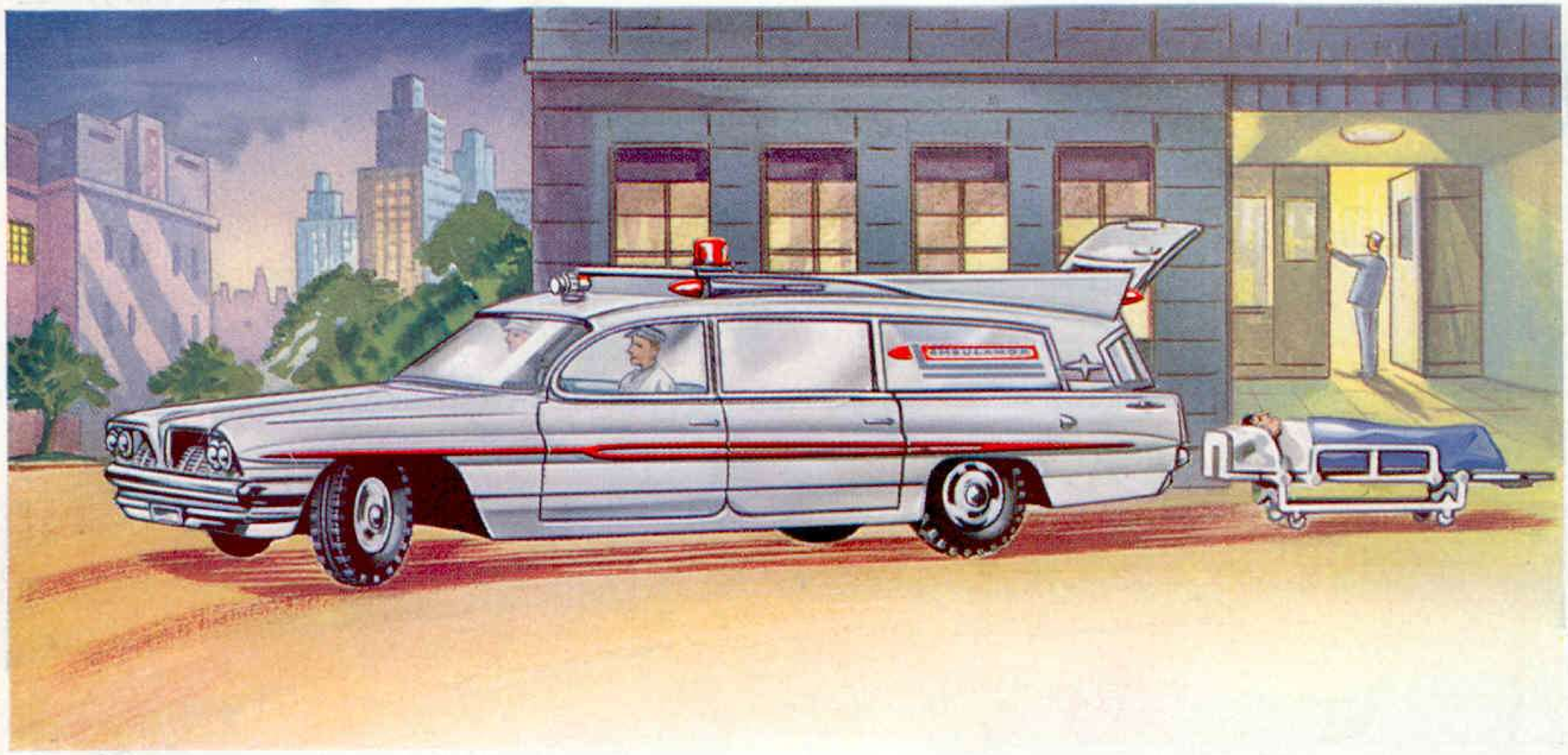

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DINKY TOYS GIFT SET No. 695
7.2 HOWITZER AND TRACTOR

This fine Gift Set contains two of the most popular models in our Army range. The tractor is based on a 6-wheel drive Leyland Chassis which is used for towing medium artillery and equipment over rough country and the Howitzer is based on a type designed to fire shells of approximately 250 lb. weight, with a range of 20,000 yards.

Length of Tractor 5½ in.
Length of Gun 5⅛ in. U.K. Price **13/11**

DINKY TOYS®

MADE BY MECCANO LTD.

AVAILABLE LATER OVERSEAS

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